LAW LIBRARY, SUPREME COURT, PERTH

COMMONWEALTH BUREAU OF CENSUS AND STATISTICS
WESTERN AUSTRALIAN OFFICE

WESTERN AUSTRALIAN YEAR BOOK

No. 9 – 1970

PERIODICALS SECTION,
DARWIN COMMUNITY
COLLEGE L.R.C.
31 JUL 1978



F. W. SAYER
Deputy Commonwealth Statistician and Government Statistician

DARWIN COMMUNITY COLLEGE L.R.C.

This page was added on 11 January 2013 to include the Disclaimer below.

No other amendments were made to this product.

DISCLAIMER

Users are warned that this historic issue of this publication series may contain language or views which, reflecting the authors' attitudes or that of the period in which the item was written, may be considered to be inappropriate or offensive today.

Registered at the General Post Office, Perth
for transmission through the post
as a book

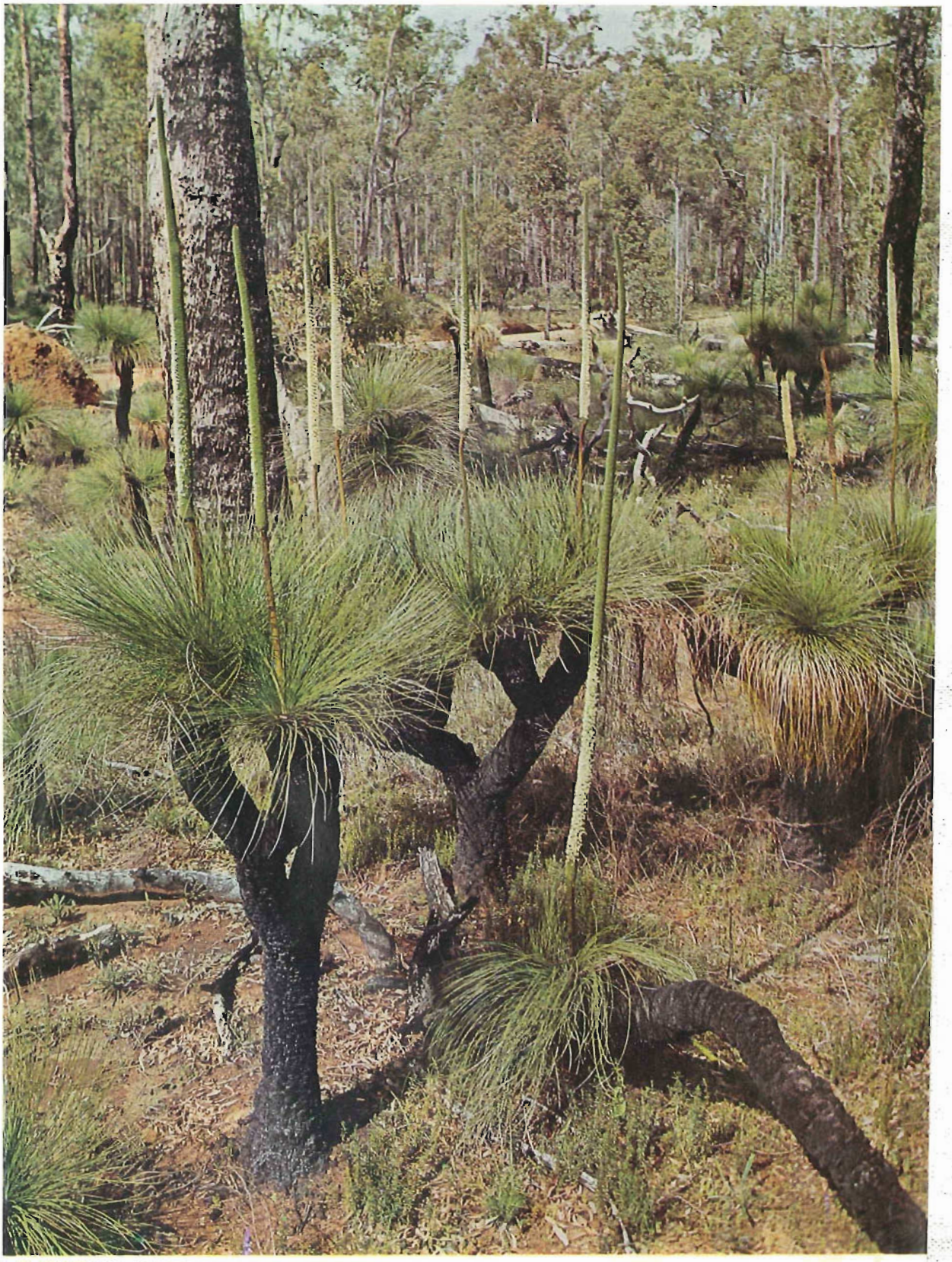
Printed in Australia by ALEX. B. DAVIES, Government Printer, Western Australia

Law  Library

SUPREME COURT,

PERTH.

WESTERN AUSTRALIA.



BLACKBOY

(*Xanthorrhoea preissii*)

Xanthorrhoea preissii is the most common of the six species of Blackboy in Western Australia, occurring in various types of bushland between the Hill River and Bremer Bay. Its curious habit is one of the unique features of the Australian bush. Often called Grass Trees, they are related not to the grasses but to the lilies, and are considered highly advanced forms. The black trunk consists largely of the leaf-bases which remain after a bush fire. New leaves develop immediately at the apex, and often flowering is stimulated by a fire.

The Blackboys illustrated form part of a bushland setting in the Shire of Albany.

Block by courtesy of Albany Region Publication

PREFACE

This issue of the *Western Australian Year Book* is the ninth of a new series. The old series, originally published for the year 1886 and discontinued in 1905, developed from the Blue Books of the Colonial Office, London, which contain the early statistical records of Western Australia.

The aim of the Year Book is to provide a general description of the State of Western Australia and its development, in terms of its geography, climate and geology, the plants and trees which grow on its surface, its animal life, and the activities and social patterns of its people in relation to this physical environment. Ample use has been made of statistical tables to supplement the descriptive text and to give a numerical account of what has been happening in the several fields of production, trade and commerce, population and social condition, the functions of government, and so on. A list of illustrations, in the form of plates, graphs and maps, and a synopsis of the contents are given in the opening pages.

The statistical tables in this issue relate in the main to periods ended 30 June, or 31 December 1968 and, in general, were the latest available at the time the manuscript was prepared. Because of the time required for editing and printing the Year Book, later data on a particular topic will often be available in mimeographed publications or on request from the appropriate section of this Office. The descriptive text has been taken forward, wherever possible, to 31 December 1969 and incorporates the effect of 1969 Commonwealth and State legislation or administrative decisions. In some instances, the most recent developments have been included in the *Appendix*.

Among new or revised material included in this issue, the following items may be especially mentioned.

Chapter II, Part 1. Insertion of an article on the seismicity of Western Australia.

Chapter II, Part 2. Insertion of an article on tornadoes.

Chapter II, Part 4. Revision of the section on Coastal Marine Fauna.

Chapter II, Part 5. Inclusion of a section on the use of pesticides in Western Australia.

Chapter III. Addition of an article covering parliamentary procedure and administrative machinery.

Chapter IV, Part 1. Expansion of the section on the Aboriginal population.

Chapter V, Part 2. Insertion of a section on sporting organisations.

Chapter V, Part 6. Insertion of sections on the Western Australian Fire Brigades Board, the Bush Fires Board and the National Safety Council of Western Australia.

Chapter VI, Part 1. Addition of sections on income tax, and pension and superannuation schemes.

Chapter VI, Part 2. Inclusion of sections on finance companies, the Public Trust Office, the Office of Titles, the Companies Registration Office, The Stock Exchange of Perth, lotteries and betting.

Chapter VIII, Part 1. Addition of a section on private exploration for minerals.

Chapter IX, Part 3. Insertion of an article on the Fremantle Port Authority and sections on iron-ore railways and civil aviation accidents.

Chapter IX, Part 4. Inclusion of a section on radio and television programmes.

Chapter X, Part 1. Addition of sections on apprenticeship and equal pay for male and female workers.

Chapter X, Part 3. Insertion of sections on wholesale and export price indexes.

Appendix. Insertion of articles on rainfall in the agricultural areas in 1969, and the origin of the names of Commonwealth electoral divisions in Western Australia.

A wide range of current statistics is available in the periodical publications produced by this Office in printed or mimeographed form, and listed at the back of the Book, as well as in the various publications issued by the Commonwealth Statistician, Canberra and by the Deputy Commonwealth Statisticians in other States. Many of the statistical tables in the Year Book have been adapted from information appearing in the several Parts of the *Statistical Register of Western Australia*, to which reference should be made if more detail is required.

The reader's attention is drawn to the information service and library facilities provided by this Office, where all publications of the Bureau of Census and Statistics are available for reference. Business men, manufacturers, primary producers, government authorities, students and the public generally are invited to make full use of these services.

My thanks are again expressed to the many government officials and others who willingly collaborated in the preparation of letterpress or in the review of existing matter, to the Albany Region publication, BP in Western Australia, Hamersley Iron Pty. Limited, The Swan Brewery Company Limited, Vickers Hoskins Pty Ltd, West Australian Petroleum Pty. Limited, the Clerk of the Parliaments, the Department of Agriculture, the Department of Industrial Development, the Department of Lands and Surveys, the Department of Public Works and Water Supply, the Fremantle Port Authority, the National Parks Board of Western Australia, the Western Australian Government Railways and the Zoological Gardens Board for the loan of blocks used in some of the illustrations, to ' The Sydney Morning Herald ', the Department of Industrial Development, the Forests Department and the Australian News and Information Bureau for the use of photographs, and to the Government Printer and his staff for their continuing interest in the work and for assistance and advice freely given at all times.

The authors of the articles appearing in Chapter II are especially thanked for contributions of new material and for their ready co-operation in revising the earlier text.

I wish to pay particular tribute to the Editor of Publications, Mr. J. E. Gowdy, B.Ec. (Hons.), who prepared various sections of the Year Book and edited the remainder.

In the preparation of the Year Book, every care has been taken to ensure that, as far as possible, the statistical and other material are free from error. Limitations of space restrict the range of contents or amount of detail that can be included in this publication but I shall be grateful to those who will be kind enough to make suggestions for improvement.

Readers requiring the main statistical information of the Year Book in a concise form are referred to the *Western Australian Pocket Year Book*.

F. W. SAYER
Deputy Commonwealth Statistician
and
Government Statistician

Commonwealth Bureau of Census and Statistics,
Western Australian Office,
PERTH, W.A.
29 May 1970

CONTENTS

CHAPTER	SUBJECT	PAGE
	LIST OF MAPS, GRAPHS AND PLATES	ix
	SYNOPSIS	x
I	DISCOVERY, COLONISATION AND DEVELOPMENT	1
II	PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA	16
III	CONSTITUTION AND GOVERNMENT	98
IV	POPULATION AND VITAL STATISTICS	124
V	SOCIAL CONDITIONS	163
VI	FINANCE	259
VII	LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE	305
VIII	PRODUCTION	323
IX	TRADE, TRANSPORT AND COMMUNICATION	417
X	INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES	470
	STATISTICAL SUMMARY FROM 1829	509
	APPENDIX	528
	NOTE ON STATISTICAL DIVISIONS	535
	LIST OF STATISTICAL DIVISIONS AND LOCAL GOVERNMENT AREAS	536
	INDEX	539
	LIST OF STATISTICAL PUBLICATIONS	559
	GENERAL MAP OF WESTERN AUSTRALIA	*inside back cover*

COAT OF ARMS OF WESTERN AUSTRALIA



Notification that Her Majesty the Queen had approved certain Armorial Ensigns and Supporters for Western Australia appeared in the *Government Gazette of Western Australia* of 18 April 1969. The coat of arms is described in the following terms.

For Arms: Argent on a base wavy Azure charged with a barrulet wavy Argent a Black Swan naiant proper. And for Crest: On a Wreath Or and Sable The Royal Crown between two Kangaroo Paw (*Anigosanthos Manglesii*) flowers slipped proper. And for Supporters: On either side a Kangaroo holding in the exterior fore-paw a Boomerang proper.

FLORAL EMBLEM OF WESTERN AUSTRALIA
(Mangles' Kangaroo Paw)



By a proclamation published in the *Government Gazette of Western Australia* of 18 November 1960, the flower of the plant *Anigosanthos Manglesii* D.Don was declared to be Western Australia's floral emblem.

A description of the plant, its habit and distribution appeared in the *Official Year Book of Western Australia*, No. 2—1960.

ROUNDING OF FIGURES

Many of the figures appearing in the tables have been rounded (to thousands or, in some cases, millions), without making those adjustments which would be needed to make the rounded figures add to the rounded total. It is for this reason that figures do not always add to the totals shown in the tables.

Percentages appearing in the tables have been corrected to the first (or second) place of decimals without making those adjustments which would be necessary to make the percentages so expressed add to precisely 100.

LIST OF MAPS, GRAPHS AND PLATES

	Page
Blackboys in the Shire of Albany	*Frontispiece*
Stirling Range	*facing* 16
Geological Map	20
Earthquake Fissure near Meckering	*facing* 32
Fault Scarp in Meckering Area	*facing* 32
Epicentres of Large Earthquakes (Map)	33
Wettest Six-Monthly Period of Year (Map)	39
Evaporation (Map)	45
Agricultural Areas—Growing Season (Map)	46
Tornado	*between* 48 *and* 49
Path of a Tornado	*between* 48 *and* 49
Dingo	*between* 64 *and* 65
Numbat	*between* 64 *and* 65
Short-necked Tortoise	*between* 64 *and* 65
Australian Goshawk	*facing* 80
Painted Snipe	*facing* 80
Natural Regions (Map)	95
Legislative Council Chamber	*between* 112 *and* 113
The Black Rod	*between* 112 *and* 113
The Mace	*between* 112 *and* 113
Age Distribution of the Population—Census, 30 June 1966 (Graph)	*facing* 128
Births, Deaths and Marriages, 1880 to 1968 (Graph)	145
Rates of Birth, Death and Marriage, 1880 to 1968 (Graph)	156
Primary and Secondary Schools—Pupils 1900 to 1968 (Graph)	165
Boating Lake in Children's Nature Playground, King's Park	*facing* 192
Balancing Rock, Porongurup National Park	*facing* 192
New Houses and Flats Completed, 1959–60 to 1968–69 (Graph)	226
National Welfare Fund—Expenditure, 1963–64 to 1967–68 (Graph)	240
Bank Deposits and Advances, 1959–60 to 1968–69 (Graph)	288
Comprehensive Agricultural Areas Water Supply Scheme (Map)	313
Irrigation Districts in South-West Division (Map)	317
River Crossing in the Kimberley	*facing* 320
Kununurra Townsite	*facing* 320
Net Value of Production, 1958–59 to 1967–68	325
Areas of Current Development (Map)	*facing* 336
Wool and Wheat—Annual Production, 1901 to 1967–68 (Graph)	339
Beef Cattle in the North	*facing* 352
Wool and Wheat Production—Annual Values, 1901 to 1967–68 (Graph)	356
Timber Hauling in the South-West	*between* 368 *and* 369
Rock Lobster Fishermen	*between* 368 *and* 369
State Forests (Map)	371
Repairing Iron-ore Shovel	*between* 384 *and* 385
Drilling Rig	*between* 384 *and* 385
Oil Refinery by Night	*facing* 400
Imports and Exports, 1958–59 to 1967–68	428
Port of Fremantle Inner Harbour	*between* 442 *and* 443
Portainer Crane at Fremantle	*between* 442 *and* 443
Avon Marshalling Yard	*between* 442 *and* 443
Diesel Locomotive	*between* 442 *and* 443
Port of Fremantle (Map)	*between* 448 *and* 449
Air Services in Western Australia at 30 June 1969 (Map)	*between* 448 *and* 449
Motor Vehicles on Register, 1945 to 1968 (Graph)	451
State Basic Wage—Males and Females, 1926 to 1968 (Graph)	478
Industry of the Work Force—Census, 30 June 1966 (Graph)	494
Rainfall in Agricultural Areas, 1969 (Map)	529
General Map of Western Australia	*inside back cover*

SYNOPSIS

CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

	Page
Discoveries and History up to 1829	1
The Swan River Colony	2
The Convict Era	5
The Gold Rushes of the 'Nineties	7
Consolidation 1901-1929	9
Depression and War	11
A State on the March	13

CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

PART 1—PHYSICAL FEATURES AND GEOLOGY

General 16
Physical Features—
The Great Plateau 17
The Coastal Plains 18
Geology—
The Precambrian Basement 19
The Sedimentary Basins 23
The Superficial Deposits 27
Conclusion 29
Current Geological Investigations in Western Australia 29
Seismicity of Western Australia 30
Further Sources of Information 32

PART 2—CLIMATE AND METEOROLOGY

General 34
Pressure Systems 34
Rainfall 35
Temperature 40
Thunderstorms 44
Evaporation 47
Growing Season 47
Metropolitan Climate 47
Snow 48
Tornadoes 48
Interstate Comparisons 51

PART 3—VEGETATION
(With Special Reference to Toxic Plants)

General 52
Vegetation Provinces—
Climatic Characteristics 53
Vegetative Characteristics 54
Vegetation Formations—
The Forest Formations of the South-West 55
Woodland Formations 55

PART 3—VEGETATION—*continued*

Vegetation Formations—*continued*
Shrub Formations 56
Savannah and Steppe Formations 56
Poisonous Plants 56
Conservation of the Flora 59

PART 4—FAUNA

Distribution—
Terrestrial Vertebrates 62
Coastal Marine Fauna 64
Fauna of Inland Waters 65
Composition of the Fauna—
Mammals 65
Birds 69
Reptiles 72
Amphibia 74
Freshwater Fishes 74
Marine Fishes 74
Echinodermata 77
Mollusca 78
Coelenterata 78
Crustacea 79
Spiders 79
Insects 79
Conservation of the Fauna 79
Further Sources of Information 82

PART 5—ENTOMOLOGY
(With Particular Reference to Agriculture)

General 85
Class Insecta (Insects) 85
Class Arachnida (Spiders, Mites, Ticks, etc.) 91
The Use of Pesticides in Western Australia 91
Further Sources of Information 94

PART 6—NATURAL REGIONS 95

CHAPTER III—CONSTITUTION AND GOVERNMENT

General 98
Outline of Constitutional Development 98
Vice-Regal Representation 99
The Federal Parliament 99
The Senate 100
The House of Representatives 100
The State Parliament 101
The Legislative Council 103
The Legislative Assembly 104
Parliamentary Procedure 106
Elections, Electors on Roll and Votes Recorded—
The Federal Parliament 109
The State Parliament 109
Legislation during 1968 111
The Judicature—
Commonwealth Courts 117
State Courts of Western Australia 118
Overseas Representation in Western Australia 118
State Representation Overseas and in other States 119
The Local Government System—
General 119
Local Government Districts 120
Constitution and Electoral Provisions 121
Functions of Local Authorities 121
Financial Provisions 122

CHAPTER IV—POPULATION AND VITAL STATISTICS

Page

PART 1—POPULATION

General 124

The Census—
- General 124
- Scope 125
- Aborigines 125
- Recorded Population 125
- Masculinity 126
- Age Composition 126
- Birthplace 128
- Nationality 128
- Religion 129
- Marital Status 129

Intercensal Increases 130

Geographical Distribution 131

Population Density 136

Estimates of Population 137

Aboriginal Population 139

Page

PART 2—BIRTHS, DEATHS AND MARRIAGES

The Registration System 142

Births—
- Numbers 143
- Birth Rates 146
- Gross and Net Reproduction Rates 147

Deaths—
- Numbers 147
- Death Rates 148
- Standardised Death Rates 149
- Causes of Death 149
- Infant Mortality 152
- Causes of Infant Deaths 153
- Stillbirths 154
- Age-specific Death Rates 154

Australian Life Tables 157

Marriages—
- Numbers 158
- Age At Marriage 158
- Religious and Civil Marriages 160
- Marriage Rates 160

Divorce 161

CHAPTER V—SOCIAL CONDITIONS

PART 1—EDUCATION

Primary, Secondary and Technical Education—
- General 163
- Government Financial Assistance 163
- School Attendance 164
- School Enrolments 164

The Education Department—
- General 167
- Primary and Secondary Schools 168
- Primary and Secondary Curriculum 169
- Radio, Television and Film Aids 169
- Student Counselling and Vocational Guidance 169
- Special Schools and Classes 169
- Correspondence Tuition 169
- Education of Aborigines 170
- Agricultural Education 170
- Technical Education 170
- Teacher Education 171

Non-Government Schools 172

The Western Australian Institute of Technology 173
- School of Mines 174
- Muresk Agricultural College 174
- Teachers, Students and Awards Conferred 175
- Finance 176

The University of Western Australia—
- General 176
- Matriculation Requirements 176
- Degrees 177
- University Government 177
- Student Fees and Scholarships 178
- Teachers, Students, Degrees Conferred 179
- Tuition 179
- Colleges and Hall of Residence 180
- Finance 180
- Public Examinations Board 180
- Adult Education and Extension Committee 181

PART 1—EDUCATION—*continued*

State Government Expenditure on Education 181

Commonwealth Financial Assistance for Education—
- Scholarships and Awards 181
- Universities 182
- Colleges of Advanced Education 182
- Teachers' Colleges 183
- Pre-school Teachers' Colleges 183
- Science Laboratories and Equipment 183
- School Libraries 183
- Technical Training 183
- Research 183
- Financial Summary 183

PART 2—CULTURE AND RECREATION

Public Libraries—
- The Library Board of Western Australia 185
- The State Library of Western Australia 186
- Local Public Libraries 186

The Western Australian Museum 187

The Western Australian Art Gallery 188

Scientific Institutions—
- State Government Observatory 189
- State Government Chemical Laboratories 189
- The Institute of Agriculture, University of Western Australia 190
- Commonwealth Scientific and Industrial Research Organization 191

Botanic Garden 194

Public Parks and Reserves 194

Sporting Organisations 196

PART 3—HEALTH SERVICES, HOSPITALS, AND CARE OF THE AGED AND DISABLED

Health Services—
- Health Administration 201
- Infectious Diseases 202
- Special Health Services for Children 203

CHAPTER V—SOCIAL CONDITIONS—*continued*

Page

PART 3—HEALTH SERVICES, HOSPITALS, AND CARE OF THE AGED AND DISABLED—*continued*

Hospitals other than Mental Hospitals—
Commonwealth Government Hospitals 204
State Government and Government-assisted Hospitals 204
Private Hospitals 206
Mental Health Services 206
Care of Aged and Disabled Persons—
Aged Persons Homes Act 207
Sheltered Employment (Assistance) Act 208
Sheltered Employment Allowances 208
Other Commonwealth Assistance 209

PART 4—HOUSING AND BUILDING

Housing and the Census—
General 210
Dwellings—
Censuses from 1901 211
Class of Dwelling 211
Number of Inmates 212
Number of Rooms 213
Material of Outer Walls 214
Nature of Occupancy 214
Facilities 215
Motor Vehicles 215
Unoccupied Dwellings 216
Geographical Distribution 216
Government and Government-sponsored Housing—
The State Housing Commission 218
Government Employees' Housing Authority 221
War Service Homes 221
State Housing Death Benefit Scheme Act 222
Housing Loan Guarantee Act 222
Housing Loans Insurance Scheme 223
Homes Savings Grants 223
Control of Building 224
Building Operations—
General 225
Employment in Building 227
Dwellings Completed in Australia 228

PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES

General 229
Social Services Benefits—
Age and Invalid Pensions 230
Widows' Pensions 231
Unemployment, Sickness and Special Benefits 232

Page

PART 5—SOCIAL BENEFITS, PENSIONS AND WELFARE SERVICES—*continued*

Social Services Benefits—*continued*
Maternity Allowances 234
Child Endowment 234
Reciprocal Arrangements with other Countries 235
War and Service Pensions—
War Pensions 235
Service Pensions 236
National Health Services—
Hospital and Nursing Home Benefits.... 237
Medical Benefits 238
Pharmaceutical Benefits 239
Free Milk for School Children 241
Tuberculosis Campaign 241
Miscellaneous Health Services 241
Mental Health Institutions 241
State Relief Payments.... 241
Child Welfare—
General 243
Expenditure 243
Wards of the Child Welfare Department 243
Private Children 244
Maintenance of Children 244
Employment of Children 244
Adoption of Children 244
Institutions 244

PART 6—LAW, ORDER AND PUBLIC SAFETY

The Legal Profession 246
The Crown Law Department 246
Law Courts—
High Court of Australia 247
Supreme Court of Western Australia 247
Third Party Claims Tribunal 247
Courts of Session 248
Magistrates' and Coroners' Courts 248
State Licensing Court 248
Court Proceedings 249
Convictions in Courts 249
Liquor Licences 253
Police 254
Prisons 255
Probation and Parole Service 256
Public Safety—
National Safety Council of Western Australia 257
West Australian Fire Brigades Board 258
Bush Fires Board 258

CHAPTER VI—FINANCE

PART 1—PUBLIC FINANCE

Commonwealth-State Financial Relations—
The Financial Agreement of 1927 259
The Australian Loan Council 259
The Commonwealth Grants Commission 260
Tax Reimbursements 260
Special and Additional Financial Assistance 261
Financial Assistance Grants 261
Other Financial Assistance 261

PART 1—PUBLIC FINANCE—*continued*

Financial Assistance to Western Australia—
Commonwealth Consolidated Revenue Fund 261
National Welfare Fund 262

Commonwealth and State Taxation—
Commonwealth Taxation 263
State Taxation 265

CHAPTER VI—FINANCE—*continued*

Page

PART 1—PUBLIC FINANCE—*continued*

State Government Finance—
Consolidated Revenue Fund 269
General Loan Fund 273
Public Debt 275
Trust Funds 277
Local Government Finance—
General 279
General Revenue 279
General Expenditure 280
Loan Transactions 281
Pension and Superannuation Schemes 282

PART 2—PRIVATE FINANCE

Currency 285
Rates of Exchange 285
Banking—
Commonwealth Banking Institutions 286
The Rural and Industries Bank 286

Page

PART 2—PRIVATE FINANCE—*continued*

Banking—*continued*
Trading Banks 286
Savings Banks 289
Bank Interest Rates 290
Insurance—
General Insurance 291
Life Insurance 292
Motor Vehicle Third Party Insurance 293
Health Insurance Organisations 294
Building Societies 295
Instalment Credit for Retail Sales 296
Finance Companies 297
Bankruptcy 299
Public Trust Office 300
Office of Titles 300
Companies Registration Office 301
The Stock Exchange of Perth 301
Lotteries and Betting 302

CHAPTER VII—LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE

PART 1—LAND TENURE AND SETTLEMENT

Legislation and Administration 305
Methods of Land Alienation 305
Methods of Leasing—
Department of Lands and Surveys 306
Department of Mines 306
Forests Department 306
Land Classification 306
Occupation of Land 307
Government Land Settlement Schemes 309

PART 2—WATER SUPPLY AND SEWERAGE

General 310
Metropolitan Water Supply 311
Country Water Supplies—
Modified Comprehensive Scheme 312
Goldfields and Agricultural Water Supply 312
Great Southern Towns Water Supply 314
Supplies to other Country Towns 315
Underground Water 316
South-West Irrigation Schemes 316
Northern Irrigation Schemes 318
Water Resources Investigation and Measurement 320
Sewerage Schemes—
Metropolitan 321
Country Towns 322

CHAPTER VIII—PRODUCTION

General 323
Geographical Distribution of Industry 326

PART 1—PRIMARY PRODUCTION

Land Utilisation on Rural Holdings 327
Employment and Population 328
Classification of Rural Holdings 329
Machinery on Rural Holdings 331
Value of Production 332
Summary of Australian Statistics 334
Seasonal Calendar 335
Bushel Weights 335
Agriculture—
Wheat 336
Oats 341
Barley 341
Other Grain and Pulse Crops 342
Hay.... 342
Pastures 342
Green Feed 343
Linseed 343
Cotton 344

PART 1—PRIMARY PRODUCTION—*cont.*

Agriculture—*continued*
Potatoes 344
Onions 345
Tomatoes 345
Other Vegetables 346
Orchards 347
Apples 347
Pears 348
Citrus Fruit 348
Stone Fruits 349
Bananas 349
Vineyards 350
Nurseries 350
Holdings Growing Certain Crops 351
Artificial Fertilisers 351
Pastoral—
General 351
Sheep 352
Wool 354
Cattle 357
Slaughtering 358

Page

PART 1—PRIMARY PRODUCTION—*cont.*

Dairying 359
Pig Raising 361
Livestock in Australia 363
Poultry Farming 363
Bee Keeping 364
The Department of Agriculture—
General 365
State Farms and Research Stations 366
Advisory Services 367
Research Activities 367
Agriculture Protection 368
Other Services 369
Administration of Acts 369
Artificial Breeding Board 369
Farm Management Service Laboratory 369
Trapping 370
Forestry—
The Prime Indigenous Forests 370
The Inland Forests 372
Forestry Administration 372
Principal Forest Products 373
Fisheries—
General Fisheries 373
Whaling 376
Pearl-shell Fishing and Pearl Culture 376
Mining—
General 377
Gold 379
Silver 381
Asbestos 381
Bauxite 382
Beryllium Ore 382
Coal 383
Copper Ore 383
Cupreous Ore (for fertiliser) 384
Ilmenite, Leucoxene, Monazite, Rutile, Xenotime and Zircon 384

Page

PART 1—PRIMARY PRODUCTION—*cont.*

Mining—*continued*
Iron 385
Lead Ore 386
Manganese Ore 386
Nickel 387
Petroleum 387
Potash 387
Pyrites 388
Salt 388
Tin Ore 388
Other Minerals 378, 388
Quarry Products 389
Private Exploration for Minerals 389

PART 2—SECONDARY INDUSTRY

Explanatory Notes and Definitions 392
Classification of Factories 393
Historical Review 395
General Summary—
Composition of Secondary Industry 397
Location of Secondary Industry 398
Factories and Persons Employed 399
Salaries and Wages 403
Materials Used 404
Motive Power 404
Fuel Consumed 404
Value of Output and Net Production 405
Land and Buildings, Plant and Machinery 406
Individual Industries 407
Electricity and Town Gas Undertakings—
Electricity Generation and Transmission 412
Town Gas Production 414
Government Factories 414
Articles Produced 414
Department of Industrial Development 415

CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

PART 1—EXTERNAL TRADE

Overseas and Interstate Trade—
Constitutional Provisions and Legislation 417
Sources of Statistics 417
Classification of Commodities 417
Valuation of Items of Trade 418
Direction of Trade 418, 419
Summary of Trade 418
Imports 421
Exports 424
Average Export Values 429
Ships' Stores 429
Overseas Trade of Ports 430
Customs and Excise 430

PART 2—INTERNAL TRADE

Census of Retail Establishments 432
Survey of Retail Establishments 432
Deliveries of New Agricultural Machinery 434
Sales of New Tractors 434
Wholesale Sales and Stocks of Wine and Brandy 435

PART 3—TRANSPORT

General 437
Shipping 438
Administration of Ports 441
The Port of Fremantle 441
Railways—
General 443
The Western Australian Government Railways Commission 443
Summary of Operations 444
Goods and Livestock Carried 445
Railways Rolling Stock 445
Commonwealth Government Railways 446
Operations of Government Railways in Australia 446
Iron-ore Railways 446
Railway Gauges 447
Roads and Road Traffic—
General 448
Vehicle Registration, Licences and Traffic Control 449
Finance for Roads 452
Road Passenger Transport Services 453

CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION—*continued*

PART 3—TRANSPORT—*continued*

Motor Vehicle Usage 454
Road Traffic Accidents 454
Passenger Ferry Service 456
Air Transport 457
Transport Co-ordination 458

PART 4—COMMUNICATION

Posts, Telegraphs and Telephones—
General 461

PART 4—COMMUNICATION—*continued*

Posts, Telegraphs and Telephones—*continued*
Posts 463
Telegraphs and Telephones 463
Radiocommunication 464
Broadcasting and Television—
General 465
Broadcasting and Television Stations 466
Receiving Licences 467
Analysis of Programmes 468

CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

PART 1—INDUSTRIAL CONDITIONS

Industrial Authorities—
Commonwealth Authorities 470
Western Australian Authorities 470
Trade Unions 471
Apprenticeship 472
Incidence of Industrial Awards 474
Industrial Disputes 475
Wages and Earnings—
Commonwealth Basic Wage 476
State Basic Wage 476
Equal Pay for Male and Female Workers 479
Minimum Wage Rates 479
Average Weekly Earnings 481
Survey of Weekly Earnings and Hours 481
Hours of Work and Leave Provisions—
Standard Hours of Work 482
Annual Leave and Public Holidays 483
Long Service Leave 483
Workers' Compensation 484
Industrial Accidents 485

PART 2—EMPLOYMENT

General 487
The Work Force 487
Classification According to Occupational Status 488
Classification According to Industry 491
Classification According to Occupation 495
Labour Force Survey 495
Estimates of Employment 497
Unemployment 499
Commonwealth Employment Service.... 501

PART 3—PRICES

Retail Prices and Price Indexes 502
The Consumer Price Index 502
Retail Price Index Numbers, 1901 to 1969 504
Retail Prices 505
Wholesale Price Index of Materials Used in Building 505
Export Price Index 507

STATISTICAL SUMMARY FROM 1829 (p. 509)

APPENDIX (p. 528)

CHAPTER III—CONSTITUTION AND GOVERNMENT

Overseas Representation in Western Australia

Local Government Districts

CHAPTER V—SOCIAL CONDITIONS

PART 6—LAW, ORDER AND PUBLIC SAFETY

District Court

CHAPTER VI—FINANCE

PART 2—PRIVATE FINANCE

Trading Banks

RAINFALL IN AGRICULTURAL AREAS IN 1969

ORIGIN OF NAMES OF ELECTORAL DIVISIONS

PRINCIPAL EVENTS IN 1969

ARTICLES, MAPS, ETC. IN PREVIOUS ISSUES

STATISTICAL DIVISIONS (p. 535)

LIST OF LOCAL GOVERNMENT AREAS (p. 537)

INDEX (p. 539)

LIST OF STATISTICAL PUBLICATIONS (p. 559)

GENERAL MAP OF WESTERN AUSTRALIA (inside back cover)

Including: Local Government Areas
Statistical Divisions
Principal Air Routes
Isohyets

CORRIGENDA

page 116

Taxi-cars (Co-ordination and Control) Act Amendment Act
For *Tax Control Board* read *Taxi Control Board*

page 120

The Local Government System
The number of Towns at 31 December 1969 should read *11* in lieu of *12.*

CHAPTER I—DISCOVERY, COLONISATION AND DEVELOPMENT

Western Australia—A Historical Survey

Contributed by B. K. de Garis, M.A. (W.A.), D. Phil. (Oxon.)
(Lecturer in History, University of Western Australia)
(Reprinted from the *Western Australian Year Book*, No. 8—1969)

The earliest inhabitants of Western Australia were the people now known as the Australian Aborigines, a brown-skinned people of medium height and slender build, who migrated to Australia from Southern Asia at least 20,000 years ago. In the absence of animals suitable for domestication or grasses suitable for cultivation, the Aborigines remained a nomadic people dependent on hunting and food collecting and with simple but effective implements made of stone, bone or wood. Nevertheless they had achieved a delicate balance with an extremely harsh environment, and the limitations of their technology were compensated for by an extremely complex and satisfying religious and cultural life.

For many thousands of years the Aborigines occupied Australia in tranquil isolation from the rest of the world. It is likely that Indonesian fishermen and traders, and perhaps some Malays and Chinese, occasionally visited some parts of the continent including the Kimberley coast, but their influence cannot have penetrated far inland. To the developing civilisation in Europe, Australia remained a complete mystery; a hypothetical Great South Land was often drawn in at the bottom of maps of the world, but there was no real evidence for its existence. By the sixteenth century, however, the improvement of shipbuilding and navigational techniques enabled Portuguese and Spanish sailors to explore the Pacific and come close to the north-east coast of Australia. The long period of isolation was nearing an end.

The first Europeans definitely known to have visited the shores of Western Australia were the crew of the tiny Dutch sailing ship ' Eendracht ', which in October 1616 explored the area now called Shark Bay. We can speak with certainty about the visit of the ' Eendracht ' because its skipper, Dirk Hartog, left behind a pewter dish fixed to a pole and inscribed with the details of the incident. It is possible that other European sailors had reached Western Australia before 1616; indeed there are tantalising fragments of evidence which suggest this, but Hartog and the ' Eendracht ' remain the earliest authenticated visitors.

From 1616 onwards, however, Dutch vessels touched on the Western Australian coastline in rapid succession, some, such as the ' Batavia ' in 1629 and the ' Vergulden Draeck ' in 1656, being wrecked there. All of these visits were largely accidental, being brought about by the strong westerly winds which blew ships engaged in the thriving trade between Holland and the East Indies off their course. One exception to this rule was the visit in 1644 of Abel Tasman, who was sent by the authorities of the Dutch East India Company to explore the north and north-west coasts of the new land about which reports were constantly being received. Tasman named the western end of the continent ' New Holland ', but like all the other early visitors he was not very impressed by what he saw of the arid terrain and its aboriginal inhabitants. Thus, although the Dutch had pieced together quite a lot of information about Western Australia by the mid-seventeenth century, they showed no interest in further exploration or settlement.

The first British ship to reach Western Australia was almost certainly the ' Trial ', which in May 1621 was wrecked in the vicinity of the Montebello Islands. Two boatloads of the survivors made their way to Batavia. There was no further British activity in the area until 1688 when a group of buccaneers in the ' Cygnet ' spent some time on the north-

west coast, beaching their vessels for repairs in King Sound. One of these men was William Dampier, who subsequently published an account of 'New Holland' in a volume called *New Voyage Around the World* which attracted a great deal of attention. The British Government was stirred into outfitting the 'Roebuck' and commissioning Dampier to make a further voyage of exploration. In 1699 Dampier again visited the north-west coast of Australia, from Shark Bay to the Dampier Archipelago, and kept a careful record of all that he saw. On both occasions Dampier, like the Dutch, formed an unfavourable impression of 'New Holland', which he described as dry, sandy, and unsuitable for agriculture. 'The inhabitants of this country' Dampier described as 'the miserablest people in the world', and he held out little hope of profitable trade with them. Such comments did not encourage governments to spend further money on investigation, and for another hundred years there was little activity off the west coast.

In the meantime, Captain James Cook in the 'Endeavour' had in 1770 discovered the east coast of Australia, and his reports about it were much more favourable than those of earlier sailors about the north and west coasts. Cook formally claimed the eastern portion of 'New Holland' for the British Crown and named it 'New South Wales'. Thus it came about a few years later that the British Government, no longer able to send convicts to a newly-independent America and with gaols bursting at the seams, decided to make New South Wales the site for a new penal colony.

In January 1788, Captain Arthur Phillip arrived at Sydney Cove with a party of convicts and marines and the European occupation of Australia had begun, though it was some time yet before Western Australia was colonised, for Phillip's commission as first Governor of New South Wales gave him authority over little more than half the continent. In 1825 Governor Darling's commission was extended beyond that of his predecessors to cover two-thirds of the country, but the western third remained unclaimed territory. However, the colonisation of New South Wales had provided a base for more detailed exploration of Australian coastal waters and by the 1820s the western coast had been extensively charted by two enterprising British naval officers, Matthew Flinders and Philip Parker King, and by French navigators such as Baudin, Hamelin, and Freycinet.

The interest being shown in 'New Holland' by the French alarmed the British Government slightly, and although the area was still not formally claimed for Britain a small military garrison under the command of Major Edmund Lockyer was sent from Sydney to keep out 'trespassers'. On Christmas Day 1826 Lockyer and his party arrived at the majestic anchorage of King George Sound; the tiny and isolated outpost they established there was the first British settlement in Western Australia. This was not intended to be a permanent settlement, but before its abandonment in 1831 a full-scale colony was established several hundred miles up the west coast.

THE SWAN RIVER COLONY

The British authorities were reluctant to add the trouble and expense of a new and remote colony to their already vast imperial responsibilities, but their hand was forced by a combination of pressures. A naval officer named James Stirling, who was in Australian waters in 1826-27 in command of H.M.S. 'Success', secured permission from Governor Darling to visit the west coast. In March 1827 Stirling spent a fortnight examining the Swan River area, hitherto better known to the Dutch and French than to the British. His report, and that of the New South Wales Government Botanist who accompanied him, spoke in glowing terms about the desirability of establishing a permanent settlement on the Swan, and Stirling offered to lead a party for this purpose. Governor Darling was easily persuaded to endorse the proposal but the British Government firmly rejected it and the scheme might well have ended there had Stirling not been invalided back to London in 1828. Once he had recovered from his illness Stirling lost no time in seeking support for his plan for a Swan River Colony, and he soon aroused the interest of a syndicate of capitalists who were prepared to invest large sums there. Stirling's frequent visits to the Colonial Office, together with his evidence that there was considerable public support for a new colony and recurrent rumours that the French still had designs upon 'New Holland', at last overcame official reluctance.

In November 1828 Captain Fremantle was despatched in H.M.S. ' Challenger ' to take formal possession of the western third of the Australian continent, and this he did on 2 May 1829. In the meantime the Colonial Office had announced that a colony was to be established at the Swan River with Captain Stirling as its first Lieutenant-Governor and that all settlers who arrived there before the end of 1830 would be granted one acre of land for every one and sixpence worth of capital, stock or equipment they took with them, with a further 200 acres for every labourer they took. These grants were to be absolutely free provided that the land was developed within ten years of arrival, though the settlers had of course to meet the expense of transporting themselves, their families and their servants to the Colony.

These were remarkably favourable terms and they caused a great deal of excitement in an England where social status was still largely dependent on landownership and where land was increasingly difficult to obtain. The Colonial Office was bombarded with inquiries about the proposed colony and there were references in the press to ' Swan River Mania '. Many of the inquirers ultimately stayed at home, or went elsewhere but there was no shortage of those who decided to throw in their lot with the new Colony. Perhaps the most famous of the early colonists was Thomas Peel, son of a wealthy Manchester manufacturer and merchant, and cousin of the Tory Prime Minister, Sir Robert Peel. Peel was promised no less than 250,000 acres of land on the south bank of the Swan in return for taking out 450 workmen and sinking his fortune of at least £20,000 in the Colony. Many of the other colonists were ex-naval or military men who could not afford to bring up families in England on the half-pay to which they had been retired after the Napoleonic wars. Others were younger children of the minor gentry and clergy with small expectations at home, or merchants who had amassed a modest fortune and wished to take up land. Such people were attracted to the Swan River scheme not only by the cheap land but because, unlike New South Wales, this was to be a colony for free men and free men only.

Captain Stirling set sail for the Colony in the transport ship ' Parmelia ', which was accompanied by H.M.S. ' Sulphur ' bearing a detachment of troops under the command of Captain F. C. Irwin. Other officials in the party were J. S. Roe, who was to be Surveyor-General and Peter Brown, the Colonial Secretary. The Colonial Chaplain, Rev. J. B. Wittenoom, followed a few months later. The ' Parmelia ' arrived off Rottnest Island on 1 June 1829, followed by the ' Sulphur ' a week later, and on 18 June 1829 a Proclamation was read and the Colony officially came into being. However, wet and wintry weather conditions kept the shiploads of settlers who began to arrive, huddled in tents on Garden Island. The name ' Fremantle ' was bestowed on a site at the mouth of the Swan River and this was then proclaimed to be the port of the Colony. The choice of a capital was more difficult and several sites were toyed with before a spot at the foot of Mount Eliza, twelve miles up river, was selected. The name ' Perth ' was given to the capital, this being the shire represented in the House of Commons by the Secretary of State for Colonies, and the new town was founded on 12 August 1829, with the ceremonial felling of a tree.

The colonists now began to move up to Perth from Garden Island, and by the end of 1829 most of the central blocks had been allocated and occupied. The number of settlers built up with embarrassing speed for twenty-five ships had arrived between June and December and by the end of 1831 the permanent population had reached 1,500. The surveyors could not keep pace with the spate of new arrivals clamouring for immediate land grants, so that the land was occupied most haphazardly and grants allocated with little knowledge of its quality.

In the first instance exploration and settlement was to the south of Perth. Once the land up the river to Guildford had been taken, small settlements were made down the coast at Bunbury and Augusta and on the Vasse River. A party from Perth visited the military outpost at King George Sound, and after that garrison was withdrawn to Sydney in 1831 the area was renamed the Plantagenet District with Albany as its town, and settled by intending farmers. Albany was also important to the infant colony as a port, for it

had a much better harbour than Fremantle and it was also closer to the main shipping route to Sydney. For much of the nineteenth century therefore, most overseas vessels called at Albany and goods and mail were then carried to Perth either overland or in small coastal packets. Another party led by Ensign Dale at length crossed the Darling Range and found good land in the York-Northam-Beverley district and after Stirling had verified this for himself settlement was allowed to spread in this direction also.

Unfortunately the rate of agricultural development was much slower than had been hoped and the first few years of the Swan River Colony were just such a struggle for subsistence as they had been in New South Wales. Few of the colonists were experienced practical farmers. Few had any conception of what Australia would be like or of the difficulties in bringing virgin bush under cultivation. Few had any idea what implements would be needed in the Colony, or how little use they would have for their fine carriages, their pianos and their gracious furniture. Few indeed were accustomed to, or capable of, the manual labour which the shortage of workmen in the Colony soon made imperative. Moreover many of the workmen who did come to the Colony were little more suited to the pioneering life than their masters, having been recruited from among the paupers of London and other big towns in the south of England.

The delays which occurred in surveying and granting land in the early years added to the problem, as did the poor quality of the soil near Perth and along the coast. Further south where the soil was richer there were dense hardwood forests which were difficult to clear. The best agricultural and pastoral lands of Western Australia lay further inland and to the north and were not opened up for some years. In the meantime many settlers became discouraged and left the Colony. Rumours reached England that the Swan River Colony was a stagnant backwater, a place better avoided, and this discouraged further investment and migration.

It was particularly unfortunate that Thomas Peel's grandiose plan did not succeed, for this might have given the Colony the boost it needed. Peel fulfilled his undertaking to bring out 450 immigrants but he arrived too late to qualify for his original grant on the south bank of the Swan and had to be content with a quarter of a million acres of coastal sandplain and swamp between Armadale and Pinjarra. He proved incapable of running his vast estate, his men deserted him, his partner failed to send essential equipment and supplies, and the whole scheme collapsed. A land settlement scheme at Australind organised by the Western Australian Company, a few years later, was also unsuccessful.

For those who remained in the Colony and settled down to adapt themselves to the hard conditions and make the best of their new home, life was relatively uneventful through the 1830s and 1840s. Even after the establishment of colonies in South Australia and Victoria in the mid 1830s the Swan River settlers were still isolated by many hundreds of miles from other settlements of Europeans, and visitors were few. The Aborigines did not offer any real resistance to the white men who displaced them from their ancestral lands, though in 1834 thirteen Aborigines and one white policeman died as a result of the 'Battle of Pinjarra', the only serious clash between the two peoples.

The colonists were too scattered and too absorbed in wresting a living from the soil for there to be much social and cultural life, though in Perth itself there were regular balls, picnics, race meetings, and musical evenings, with Government House the centre of polite society. From the beginning the Swan River settlers emphasised the fact that theirs was a 'gentleman's colony' as opposed to the 'pick-pocket colonies' of New South Wales and Van Diemen's Land, and for many years Western Australia remained the most 'English' of the antipodean colonies. Divisions between classes were naturally more fluid and more informal than in Britain, but an elite group of wealthy land-owning families quickly established a monopoly, first of social prestige and later of political influence. There were few facilities for education in the early years. Those who could afford to do so imported governesses for their children until they were old enough to be sent to English boarding schools, but most children received scarcely any schooling. There were few clergymen in the Colony but devoted lay people saw to it that religion was not entirely

neglected. From 1840 onwards the Colonial Government subsidised the main denominations and Anglican, Wesleyan and Congregational churches were built. Catholic priests arrived from Ireland in the 1840s, and in 1846 a party of Spanish Benedictine monks founded a monastery and mission to the Aborigines at New Norcia.

Until 1838 Captain Stirling remained Governor of Western Australia, as the Swan River Colony came to be known following the suggestion by Matthew Flinders that the continent as a whole should be called Australia. He was succeeded by John Hutt, who held the office from 1839 until 1846. For the first few years Stirling wielded absolute and undivided authority. In 1832 Legislative and Executive Councils were created, composed of a handful of government officials and later a few wealthy colonists nominated by the Governor, but in practice for more than half a century the Governor remained the supreme power in the Colony.

THE CONVICT ERA

By the late 1840s, two decades after the Colony's foundation, the population of Western Australia was still less than 5,000 strong and the rate of economic development remained painfully slow. An impasse had been reached. The Colony could not attract the labour and capital it needed until it showed signs of more dynamic progress, but without additional labour and capital, progress was impossible. In desperation the leading colonists swallowed their pride and asked the British Government to send out convicts to Western Australia. Their request was acceded to with embarrassing speed, for by this time New South Wales had refused to accept any more convicts and Britain was once again facing its old problem of overcrowded gaols. In June 1850 the first boatload of convicts arrived, before any preparations had been made for their reception and deployment. Convicts continued to be transported to the Colony for a period of eighteen years, the total number sent being 9,668, all of whom were men. The last party arrived in 1868 and thereafter the number of convicts gradually dwindled, though it was not until 1886 that the convict system was finally disbanded.

Each convict spent an initial period under direct government control, usually employed on public works, and then was given a ticket-of-leave to work for a private employer in one of the country districts. A man with a ticket-of-leave remained under the supervision of police and magistrates and could be re-arrested for even the most trivial of offences, but he had a choice of employers and had to be paid wages. In due course a well-behaved ticket-of-leave holder could apply for a conditional pardon, which made him a free man provided that he did not return to the United Kingdom before the expiration of the full term of his sentence. This scheme differed considerably from the haphazard assignment system of New South Wales, and the treatment of convicts in Western Australia was also less brutal than had been the case in the eastern colonies. Chain gangs, solitary confinement, and the cat-o'-nine-tails were still used, but they were used less frequently and less indiscriminately.

One of the most obvious ways in which the convicts made an impact on Western Australia was that their labour gave the Colony its first good roads, bridges, and public buildings. Before 1849 there had been neither the money nor the labour for public works; even between Perth and Fremantle most of the traffic had been by river because the road was so bad. The availability of convict labour changed this and though for the first few years the convicts were used mainly for the construction of buildings for themselves and their gaolers, later the benefits of their work were spread around the Colony. The streets of Perth and Fremantle were levelled and improved; a main road to Albany was cleared; scores of bridges were built including a new causeway at Perth; jetties were constructed at Bunbury and Busselton; and courthouses were built in all the major country towns. In Perth itself the convicts were solely or partially responsible for such buildings as the old Perth Boys' and Bishop Hale's schools, the Town Hall, the Pensioners' Barracks, and a new Government House. By 1870 Perth gave an appearance of solidity and prosperity and looked like a town rather than an untidy village.

Convict labour also gave a boost to agriculture and other industry, for the settlers now had a much larger work force on which to draw. Moreover there were more people to be fed, clothed, and housed, and there was a more reliable flow of shipping to and from the Colony, so that both the internal and external market for colonial produce was expanded. The introduction of convict transportation also injected much needed capital into the Colony, for the British Government had necessarily to spend a great deal of money on feeding, clothing, and guarding the convicts.

As a result of these and other factors the Colony developed much more rapidly in the 1850s and 1860s, the convict decades, than it had done in its first twenty years. The population soared from 5,886 in December 1850 to 22,915 in December 1869, and clearly the arrival of nearly ten thousand convicts and five and a half thousand assisted migrants, sent out as part of the Colony's bargain with the British Government, had a lot to do with this. The total area of land under cultivation increased sixfold in the same period and the number of sheep, cattle and other livestock kept pace with this rate of expansion. Wool-growing boomed just as it had done in the eastern colonies thirty years before, and this was particularly valuable because it provided the Colony with an export industry, most of the clip going straight to Britain. Other useful exports were hardwood timber to South Australia, sandalwood to China and horses to India.

With so much progress being made, some colonists began to feel that the Colony was ready to stand on its own feet again. At much the same time the British Government came around to the view that transportation was an expensive and inefficient method of dealing with the penal problem and in 1865 it announced that no further convicts would be sent to Western Australia after 1868. The eastern Australian colonies were jubilant at the news, for they had long objected to the steady trickle of ex-convicts making their way across the continent, and most Western Australians were also pleased with the decision. However, in the 1870s and 1880s it became apparent that the Colony had been more dependent on the convict system than most people had realised. In the twenty years after the end of transportation the rate of population growth dropped back to only half that of the previous twenty years, and for a time the agricultural industries actually lost ground. A series of bad seasons aggravated the problem and food supplies had once again to be imported. Fortunately the export of sandalwood and hardwoods continued to prosper and the pastoral industry also flourished, the total number of sheep in the Colony being in excess of 1½ million by the mid-1880s. Another bright feature of the period was the dramatic rise of the pearling industry off the north-west coast to become a valuable export-earner.

As time passed, the search for minerals, timber, and better farming land, plus curiosity and adventurousness, led the colonists to explore their vast territory more widely and the frontiers of settlement spread. In the 1850s and 1860s the South-West was extensively occupied as far south as Albany and Kojonup, and to the north the Greenough district was opened up and quickly became the principal wheat-producing region. In the 1870s the pastoralists pushed further north to occupy the De Grey, Gascoyne and Murchison districts, and by the 1880s even the Kimberley districts were beginning to be settled. The completion in 1877 of the Overland Telegraph line connecting Perth with Adelaide and Darwin and thence with the outside world did much to reduce the isolation of the Colony, and railway building in the late 1870s and the 1880s improved communication and transport within the Colony. However, the scope of such works was limited by the impoverishment of the colonial treasury in the post-transportation period.

Part of the price which the colonists paid for their convict labour was that political development was very slow. Throughout the convict era Western Australia was ruled by semi-autocratic Governors sent from Britain, with the aid of their paid officials and a few prominent settlers chosen by themselves. Once transportation ended the colonists lost no time in agitating for a greater voice in the conduct of affairs, and in response to their demands a new constitution was introduced in 1870 embodying the principle of representative government. Thereafter the Legislative Council consisted of eighteen members, twelve of whom were elected by the colonists, and was presided over by its own Speaker rather than by the Governor. However, the powers of the Council were very restricted and when the Governor and the Council clashed, the former always prevailed.

The introduction of 10,000 convicts changed the character of Western Australian society much less than many people feared. Naturally there was a slight increase in lawlessness but few of the convicts committed further serious crimes in the Colony and bush-ranging was less common than it had been in eastern Australia. The Colony was so isolated that few convicts attempted to escape from it, though a party of sixty Irish Fenians who arrived on the last convict ship caused some trouble. One of them, John Boyle O'Reilly, escaped by stowing away on an American whaler in 1869 and seven years later he successfully arranged for a group of his friends to abscond from Fremantle Gaol to another American ship, the 'Catalpa', which escaped because the local authorities were afraid to fire on the American flag. Such incidents were rare, however. Most of the convicts gave no trouble at all, and the policy of dispersing them around the agricultural districts enabled them to be absorbed so easily that they soon became indistinguishable from the rest of the working-class population. Since all of the convicts were men and few of their wives were prepared to accompany them, even when offered a free passage, the ratio of men to women in the Colony rose as high as two to one for a time. However, the Government saw to it that most of the assisted migrants brought out to the Colony were young single women, mostly Irish, and this helped to redress the balance of the sexes. Fortunately there was little prejudice against the convicts once they had served their sentence, and marriages between ex-convicts and free women were common. At the other end of the social ladder, the grip of the old-established land-owning families on the affairs of the Colony remained unchallenged during and immediately after the transportation period. Western Australia was a quiet and conservative Colony and retained its quaintly 'English' flavour well into the 1880s. Though no longer the stagnant backwater of the 1830s and 1840s, it was still very much the 'Cinderella' of the Australian group of colonies when compared with its brash and prosperous neighbours. However, before the end of the century the state of the Colony was altered dramatically by the discovery of gold.

THE GOLD RUSHES OF THE 'NINETIES

The Western Australian colonists had always hoped that one day gold would be found in their Colony, just as it had been in most of the others, and in 1885 their dream began to come true. The first goldfield to be proclaimed as such was situated at Halls Creek in the Kimberley district, a remote spot some 300 miles east of Derby and 250 miles south of Wyndham. Despite its extreme inaccessibility and the scarcity of food and water there, several thousand men flocked to it as soon as the strike was announced. The Kimberley gold was exhausted within a few years but the experienced prospectors it had attracted to the Colony soon began to find payable gold elsewhere. From the Yilgarn and Pilbara fields, which were both proclaimed in 1888, the golden trail led through the Ashburton and Murchison finds in 1890 and 1891, to the fabulous discoveries of Bayley and Ford at Coolgardie in 1892 and of Hannan, Flanigan and O'Shea at Kalgoorlie in 1893. Suddenly Western Australia came to life and began to reduce the lead of the eastern colonies with giant strides.

While the gold rushes were at their height thousands of men streamed towards the 'fields on foot, on bicycles, on camels and horses, across hundreds of miles of arid scrub and desert. Settlements rose and fell almost overnight as rumours of new finds lured diggers from one area to another. Even on the established fields conditions were very tough in the early years, with makeshift huts or tents for shelter, a continual shortage of food and water, high temperatures, choking red dust, and little or no sanitation. The death toll was high from thirst, dysentery and typhoid, but by and large the diggers were law-abiding and there was little of the violence of the Californian gold rushes or the bush-ranging of the Victorian diggings.

In the early days most of the diggers prospected for alluvial gold by dry-blowing, or sank shallow shafts in search of gold-bearing reefs. Each man worked his own small claim, or joined together with a few mates to do so. Alluvial mining of this kind reached its peak in 1897 and then fell away rapidly. As early as 1894 it had become apparent

that the richest deposits lay underground and required expensive machinery and large-scale operations. By the end of the 'nineties the average digger had reluctantly abandoned his hopes of easy wealth and turned to working for wages in deep-shaft mines operated by large companies. The decline of alluvial digging brought to a close the colourful pioneering phase of the gold boom, but the value of gold production continued to rise yearly until 1903 when it reached a record of more than 2 million ounces. The bigger centres such as Kalgoorlie gradually took on a more permanent appearance with hotels, theatres, hospitals and schools being constructed. With the arrival of the wives and children of miners in increasing numbers, the goldfields had begun to settle down.

One indication of the startling impact which the discovery of gold made on the Colony was that the population leapt from 35,000 in 1885 to 101,000 in 1895, and by 1904 had reached 239,000. In other words the number of people in Western Australia increased almost sevenfold in the space of twenty years. Most of the new arrivals came from eastern Australia, which was suffering from a severe depression and a series of prolonged strikes in the early 1890s. Quite a large number migrated direct from Britain and there was a sprinkling from Europe and North America. By 1901 the ' old colonists ', those who had been born in Western Australia or had lived there before the gold rushes began, were in a distinct minority in their own Colony.

The gold boom attracted capital as well as people to the Colony; British investors lost confidence in the other Australian colonies in the late nineteenth century but they vied with each other for opportunities to invest in Western Australia. More than 600 companies were floated in London for mining operations in Western Australia and shares changed hands feverishly in London, Perth, and Kalgoorlie, often at inflated prices. Large sums of money were thrown away on speculative or bogus ventures, but the more successful mines returned rich dividends to their shareholders.

From 1890 onwards the Colonial Government boldly embarked on a programme of large-scale developmental works financed by extensive borrowing on the London money market. The Eastern Railway was extended to Southern Cross in 1894 and then on to Coolgardie and Kalgoorlie. At the same time a new South-Western line was constructed and the Government encouraged private investors to build the Great Southern line to Albany and the Midland Railway line into the northern wheat belt. Fremantle Harbour was dredged and moles were built to make it a deepwater port, and ships were encouraged to make Fremantle rather than Albany their main port of call. Not least among the government works, most of which were presided over by C. Y. O'Connor, the Colony's brilliant Engineer-in-Chief, was the Eastern Goldfields Water Scheme. This ambitious project, which was completed in 1903, piped fresh water 350 miles from Mundaring Weir to Kalgoorlie and also supplied the agricultural districts along its route.

Not all of these projects were for the benefit of the goldfields; indeed it was the policy of the Government to channel much of its revenue and loan money into agricultural and pastoral development so that the Colony would have a solid base to fall back on when the gold began to peter out. Thus the Homestead Act of 1893 allowed *bona fide* settlers to take up small holdings free of charge provided they made specified improvements. An Agricultural Bank was founded in 1894 to finance new farmers, and the Bureau of Agriculture was opened to give them advice. Moreover, the Government placed tariffs on imported livestock and foodstuffs to give the farmers further encouragement. With all these incentives and a vastly expanded local market as well, the agricultural industries could scarcely fail to prosper, and despite some bad seasons the acreage under cultivation soared. The pastoral industry experienced a lean period in the early 'nineties but recovered around the turn of the century, with wool remaining a valuable source of export income. Other established industries such as pearling and timber shared in the general prosperity and various forms of light manufacturing industry sprang up around Perth and its metropolitan area.

The changed economic circumstances of the Colony were gradually reflected in its politics. In 1890 a new constitution conferred upon Western Australia the same kind of responsible self-government which the other colonies had enjoyed for thirty years.

The old Legislative Council was abolished and in its place there was to be an elected Legislative Assembly of thirty members and a nominated Legislative Council of fifteen members; executive government was to be entrusted to a Premier and Cabinet responsible to the Assembly.

When the new Parliament met in 1891, Sir John Forrest was appointed as the first Premier of Western Australia, a position which he retained for a decade. A native-born Western Australian and a former explorer and Surveyor-General, Forrest gave the Colony the strong leadership it required. There were no political parties at this stage and all members prided themselves on their independence, but Forrest's ministry could always muster the support of a majority in the Assembly.

The miners had little to do with the movement to secure responsible government and after it was granted, the restricted franchise meant that few of them were eligible to vote, and the electoral boundaries left the mining districts practically unrepresented. At first the miners were too preoccupied with the search for gold to pay much attention to their political rights, but as they became dissatisfied with the Government's mining regulations, high tariffs and freight charges, and emphasis on agricultural development, they began to agitate for reform. The protests of the mining community strengthened the hand of the more liberal representatives from metropolitan and agricultural constituencies and by 1901 all adult men and women had been granted the right to vote in elections for the Legislative Assembly, which was increased in size to give reasonable representation to the goldfields. The Legislative Council had been enlarged and made elective, and payment of Members of Parliament introduced. For the time being the old colonial elite remained in control of the government but it was obvious that their days were numbered, for the transfusion of men and ideas which it had received had changed the character of the Colony and brought it much more into line with the rest of Australia.

This trend was at once demonstrated and reinforced by the Colony's reaction to the movement for the federation of the Australian colonies. Forrest himself favoured federation but most of his colleagues and supporters were reluctant to relinquish to a central Government the powers which they had only just received, and feared that Western Australia would suffer from being yoked with areas which were economically more advanced. On the other hand, the miners were solidly in favour of federation, partly because so many of them had come from the eastern colonies and partly because they hoped that a central Government would be more sympathetic to their needs than the local Government was. When the Government refused to allow a referendum on the subject, the goldfields petitioned the British Government for separation from Western Australia and the creation of a new colony which could then federate in its own right. Although Britain did not take this request seriously, the agitation on the goldfields helped to force the Government's hand. A hasty referendum showed a heavy majority in favour of federation, and the Colony of Western Australia was just in time to become an original State of the Australian Commonwealth when it was proclaimed on 1 January 1901.

CONSOLIDATION 1901–1929

The impetus of the gold rushes naturally carried over into the first decade of the twentieth century; indeed gold production did not reach its peak until 1903. But after the turn of the century gold no longer dominated the Colony as it had done in the 1890s. The mining population dwindled steadily and agriculture took up the slack, just as the Government had hoped and planned. The thirty-year period between federation and the onset of the great depression was for Western Australia a time of consolidation of the gains made during the gold boom, through the development of primary resources.

The incentives to agricultural expansion which Forrest had introduced in the 1890s were continued and supplemented by all the governments of this period. Newton Moore and James Mitchell were perhaps the principal architects of the expansion of the wheat belt but Labour Premiers in John Scaddan and Phillip Collier ably seconded their efforts. All the land along existing railway routes was surveyed and thrown open on generous terms and more than 2,500 miles of new line were constructed, most of it between 1904 and 1919,

to give access to hitherto unsettled areas. Settlers were enabled by the experimental work of the Department of Agriculture (formerly the Bureau of Agriculture) to push out in an easterly direction into districts which earlier generations had considered too dry for farming. Most significant in this respect was the development of two new strains of wheat, Nabawa and Bencubbin, which were particularly suited to local conditions. Through its Agricultural Bank the Government made money available to almost anyone who was prepared to try his hand on the land. Moreover, once the torrent of gold-seekers tapered off the Government began to bring out assisted migrants from Great Britain in considerable numbers. Thirty-three thousand people arrived in this way before the outbreak of the Great War in 1914, with a further 43,000 in the 'twenties, and many of the ' new chums ' were turned into farmers.

These policies soon produced results. The acreage under cultivation trebled between 1905 and 1911, and trebled again between 1911 and 1916. The war gave a slight check to development, but in the 'twenties wheat production trebled again to reach a record of 39 million bushels in the 1929-30 season. Long before then Western Australia had been transformed from an importer of grain and flour to a large-scale exporter; indeed wheat had displaced gold and wool as the State's principal export commodity.

Of course not all government policies succeeded as well as this, the most notorious failure being Sir James Mitchell's attempt in the 1920s to found a dairying industry. Under a plan known as the Group Settlement Scheme, British migrants and others were sent in small groups to various spots in the south-west corner of the State and set to work in teams at clearing the heavily-timbered land. Once this had been done each man was allocated a block and equipped with a home and stock. Unfortunately the inexperience of the men, their difficulties in clearing the land, and the poor prices obtained when their farms did begin to produce, meant that many of the ' groupies ' gave up in despair. The State did receive some benefits from the scheme but scarcely in proportion to the money outlayed. At the other end of the State the Kimberley beef cattle industry also made little progress, due to transport difficulties and the paucity of markets.

Most other primary industries flourished, however. The increasing popularity of mixed farming in the southern wheat belt kept sheep numbers and wool production on the rise despite a degree of stagnation in the northern pastoral areas. Fruit and vegetable growing expanded, with the Harvey irrigation scheme of 1916 and the introduction of banana growing near Carnarvon in the 'twenties being noteworthy developments. The Australia-wide wave of railway and telegraph construction and general building ensured the prosperity of the timber industry, and pearling reached its peak just before the outbreak of the war.

Secondary industry made much less progress in this period and was almost insignificant in the overall economy of the State. In this respect some of the fears of the anti-federationists may have proved justified, for the Commonwealth Government's twin policies of external tariff protection and interstate free trade made it almost impossible for infant Western Australian industries to compete with established industries in the eastern States. Apart from this the new Commonwealth Parliament and Government did not make much impact on the lives of most Western Australians. Even after the completion in 1917 of the Trans Australian Railway Line, part of Western Australia's price for federating, Melbourne and later Canberra still seemed remote and irrelevant to the citizens of the West, though in fact the financial supremacy of the Commonwealth over the States was growing rapidly in this period.

In the political sphere Western Australia experienced several important developments in the first three decades of the twentieth century. In 1901 Sir John Forrest left State politics to enter the first Federal Cabinet and with his departure the State was plunged into a period of unstable Ministries, which culminated in the formation of a party system. Among the gold seekers of the 1890s there had been some experienced trade unionists, who were largely responsible for organising Western Australia's first Trades and Labour Congress in 1899. This Congress decided upon the formation of a Political Labour Party—which at the State elections of 1901 captured eight seats in the Legislative Assembly.

Only three years later the State had its first taste of Labour rule when a minority government led by Henry Daglish held office for twelve months. The rapid rise of the Labour Party as a parliamentary force compelled the existing independents and liberal and conservative factions to come together to form a Liberal Party, which governed from 1906 until 1911. In the latter year Labour won a resounding electoral victory which enabled it to enjoy five years of office and to experiment with State socialism of a mild kind. Nation-wide controversy about conscription for war service led to a serious split in the Labour Party in 1917, however, and its leader, John Scaddan, and some of his followers joined a Nationalist coalition with the Liberals. For a few years political instability returned, but in the 'twenties the State experienced the regular alternation of Nationalist and Labour Ministries. One complicating factor was the Country Party, which had appeared on the scene in 1914 to represent the interests of the farming community. The Country Party normally supported the Nationalists, but not without periodic tensions and disagreements within the non-Labour camp.

Western Australia loyally backed-up the Commonwealth Government's decision to enter the 1914–1918 war in support of Britain, by providing more volunteers for military service overseas, in proportion to its population, than any other State. The absence of so many able-bodied men caused difficulties in some industries, as did the disruption of shipping to overseas markets, but the war did not otherwise change the tempo of life very much for those who remained in the State.

By 1929, the centenary of its foundation, Perth had grown into quite a large city for, despite the State's reliance on primary industries, more than 50 per cent of its population lived in the metropolitan area. Though there were fresh challenges and fresh opportunities for every generation, the introduction of modern amenities had made Western Australia a more comfortable place to live in than it had been during the pioneering years. Most parts of the State were well supplied with fresh water, and Perth, at least, had electricity. In addition to its railways, the State had an improving network of main roads and almost 40,000 licensed motor vehicles to use them. In the city these were supplemented by a tram service, which had begun around the turn of the century, and several private bus companies. As befitted a State of vast distances and dispersed population, Western Australia was also well to the fore in the development of civil aviation. W.A. Airways, which was founded by Major Norman Brearley in 1921 for operations in the North-West, was Australia's first commercial airline, and by 1929 there was also a regular Perth-Adelaide service. In 1913 the University of Western Australia received its first students, and its establishment crowned a system of free and secular State education which catered for the needs of children all over the State.

In its centenary year of 1929 the State was able to look back over 100 years of progress with a great deal of satisfaction. Few people had any inkling of the dark days which lay just around the corner.

DEPRESSION AND WAR

The world-wide economic depression of the early 1930s affected Western Australia severely. There were several reasons for this, one of the most important being the State's over-dependence on a few primary industries, which left it vulnerable to fluctuations in prices. Then again, the Government had financed its ambitious development schemes, many of which had not yet begun to pay for themselves, by raising large and frequent overseas loans. When the sources of overseas capital dried up, not only did the public works programme come to an abrupt halt, but the Government had great difficulty in meeting interest payments. To make matters worse, the financial crisis was intensified by a series of poor seasons.

The onset of the depression first attracted attention in Western Australia through a steep fall in the world prices of wheat and wool in 1930. As the situation worsened many farmers were forced off the land, and there was a general withdrawal from the marginal areas which had been brought under cultivation during the optimistic years of prosperity. When the Government cut back its public works, and commercial activity of all kinds

slowed to a walk, thousands of men found themselves out of work. Even those who kept their jobs had to accept wage cuts, the State basic wage being slashed from £4 7s. ($8.70) to £3 9s. ($6.90) per week. Oddly enough the only industry to benefit from the depression was gold mining. The financial difficulties of the 1930s led to an increased world demand for gold and induced the Commonwealth Government to offer a bonus to producers. This bonus plus a rise in the price of gold caused by devaluation of the currency, brought prosperity back to the goldfields and helped to draw off some of the unemployed.

Elsewhere in the State the picture was a gloomy one. Some men left their families in Perth and went out to the back-blocks in search of work, or lived in government camps whilst employed part-time on relief projects. Thousands of families were dependent on the 'dole' and on hand-outs from charitable organisations to keep them from starvation. Though few people actually starved, malnutrition was common. The widespread dismay at this turn of events resulted in an increase in lawlessness and violence; on many occasions the police were called in to control rowdy demonstrations by the unemployed.

The impotent discontent felt by so many Western Australians was further reflected in a move for the State to secede from the Australian Commonwealth. The old anti-Federal feeling of the 1890s had never entirely died out, and the social and economic dislocation of the 1930s gave it new life. Those who favoured secession argued variously that Western Australia would never be able to develop secondary industry until it could protect its manufacturers from competition from the other States; that the protective tariffs imposed by the Commonwealth for the benefit of manufacturers in the eastern States increased the costs of farm production to a level which was disastrous for a State dependent on primary industry; and that the Commonwealth Government had starved Western Australia of funds. So strong did the secession movement become that the State Government agreed to hold a referendum on the subject. The Commonwealth prepared a booklet and sent a deputation to argue the case for preserving the Federal union, but when the vote was taken, in April 1933, a two-to-one majority of voters favoured secession. A delegation was then dispatched to London to ask the British Parliament to pass legislation making Western Australia independent, only to be told that this was constitutionally impossible. Despite the overwhelming vote a few months earlier, the British rebuff was accepted and the secession movement died away, which lends credence to the view that many voters had realised that secession was impossible but had used the opportunity to express their dissatisfaction with the Commonwealth's failure to cope with the depression.

Apart from the secession episode, State politics were very dull during the 'thirties. Labour had the good fortune to be defeated at the polls in 1930, which meant that a Nationalist-Country Party government under Mitchell held office between 1930 and 1933 and incurred the ill-will of those adversely affected by the depression. On the same day as the secession referendum, Labour won an electoral victory and embarked on what was to prove to be a period of fourteen years unbroken Labour government, under Premiers Collier, Willcock, and Wise. Of course the real responsibility for dealing with the depression lay with the Commonwealth Government, which by this time had assumed far-reaching economic and financial powers. At first the Commonwealth did not handle the task very well. The Scullin Government was torn by internal divisions and handicapped by its lack of a majority in the Senate and a lack of co-operation from the Commonwealth Bank. Not until 1933 was a definite plan adopted for meeting the emergency and by that time conditions had in any case begun to improve. However, the Premiers' Plan of 1933 did assist the recovery by rallying the nation to a united course of action for the first time. By 1935 conditions were considerably better than they had been at the height of the depression, between 1931 and 1933, but even in 1939, on the eve of the World War, it is doubtful whether the State was back to normal.

Australia, and hence Western Australia, entered the war against Germany on 3 September 1939. Volunteers for overseas military service were called for, as they had been twenty-five years before, and once again the response was extraordinarily good. But for the first two years of the war the lives of those who remained at home differed little from peacetime. All this changed dramatically in December 1941, when Japan attacked the

United States base at Pearl Harbour and began her southward advance through South-East Asia and the Pacific in the direction of Australia. For a time it seemed likely that Australia would be invaded. Some towns in the North-West of Western Australia were bombed and the whole State was placed on a war footing. A total black-out was imposed and air-raid shelters were dug all round Perth and in country centres. Most able-bodied men were compulsorily called up for military service and other men and women were directed to work in strategic industries. Food, clothing, and petrol were rationed, and stringent price control introduced, as the nation channelled all its resources into a total war effort.

In response to Japan's entry into the war, Prime Minister Curtin recalled Australian troops from North Africa and the Mediterranean for defence of their homeland, and also turned to the United States for aid. Thousands of American servicemen passed through Australia, and fought side by side with Australians in the Pacific. Fremantle became for a time a major allied naval base for operations in the Indian Ocean and the South-West Pacific. By the end of 1942 the Japanese advance had been halted and the danger of invasion had passed, but the war continued for a further three years before cease-fire agreements were reached in both Europe and the Pacific. By then Western Australians had fought with distinction in practically every theatre of war.

Throughout the war years and the period of reconstruction immediately afterwards, the primary industries on which Western Australia was so dependent were subject to government control. Farmers were told what crops to grow and in what quantity, and their entire output was purchased at fixed prices. This meant that primary producers were protected from the price fluctuations of the 'thirties, at the cost of accepting organised marketing. The shortage of manpower led to further mechanisation and in many cases to improved efficiency. Industries located in the North-West and Kimberley regions suffered most from the war, through the closure of the Wyndham Meatworks and the disruption of transport facilities. Manufacturing industry experienced mixed fortunes. On the one hand the need to produce munitions, small arms, and other military supplies led to a growth in factory production, but on the other hand those factories which could not be converted to wartime uses were deprived of their manpower and forced to close. However, the vigorous programme of reconstruction after the cessation of hostilities gave secondary industry a valuable shot in the arm.

The highly centralised administration of the war and reconstruction years carried Western Australia a stage further towards complete integration with the rest of the Commonwealth. By the 1940s the expanded role of the Commonwealth in both raising and spending revenue, and its monopoly of power in such fields as foreign policy and defence, had made clear its paramountcy over the States. The vast increase in Commonwealth expenditure in Western Australia reconciled most people to this development, and in contrast to the secession movement of the 'thirties, Western Australia offered more support than any other State for further increases in Commonwealth powers at several referendums held in the 'forties.

A STATE ON THE MARCH

The years since the end of the Second World War have been good ones for Western Australia.

The vigorous immigration policy launched by the Commonwealth at the conclusion of the war received the full support of the State Government, and contributed to a rapid growth in population to reach a total in excess of 836,000 by the Census of 1966. In addition to the British migrants of earlier years, migrants from a wide range of European countries were now included in assisted-passage schemes and absorbed into the community without difficulty.

Most of the traditional primary industries enjoyed continued growth and prosperity. In the early 1950s wool prices soared to six times their pre-war level, due largely to stockpiling by nations involved in the Korean War, and a pastoral boom followed. For a time everyone who could lay their hands on grazing land and stock sought to grow wool, but the boom tapered off and by the 'sixties the wool industry had fallen back on an

expensive research and promotion campaign to stave off the competition from synthetic fibres. Whereas the woolgrowers returned to their pre-war auction system as soon as they were permitted to do so, wheatgrowers agreed to the continuation of organised marketing. The Australian Wheat Board proved very efficient at disposing of large harvests at satisfactory prices, and apart from slight seasonal fluctuations, Western Australian wheat farmers enjoyed a series of good years. Further mechanisation of rural industry and the application of scientific discoveries to combat disease and increase fertility led to improved yields from established farms and the opening up of additional lands. In particular the scientific innovations of the post-war years enabled large areas of 'light' land in the south-east of the State to be brought under cultivation. In addition to many individual holdings in this area, an American syndicate undertook to develop 1½ million acres in the vicinity of Esperance and has made good headway on the project. By 1967 Western Australia boasted of almost 32 million acres of arable land and a record wheat harvest of over 103 million bushels. The production of other cereals, fruit, vegetables, pigs, and other primary produce also made excellent progress.

One of the features of post-war economic planning was a revived interest in northern development. Transport facilities for the northern pastoral industry were improved, firstly by the 'Air Beef' scheme of 1949, and later through substantial government expenditure on beef cattle roads. However, the pastoralists continued to suffer from marketing difficulties and the deterioration of their land through insufficient expenditure on improvements. In 1961 the State, with Commonwealth assistance, embarked on an imaginative scheme of water conservation and irrigation based on the Ord River in the East Kimberley region. By 1962 a diversion dam had been completed and in subsequent years increasing quantities of cotton, sorghum and other tropical crops were produced, though not until 1967 did the Commonwealth agree to a submission by the State in 1964 for funds for the construction of the main dam and irrigation works. The establishment of an American low frequency naval communications station at North West Cape also contributed to the opening up of the North, quite apart from the mineral boom which was perhaps the most exciting development of the 'sixties.

The search for oil in the north of Western Australia was renewed soon after the war and was quickly rewarded by a strike near Exmouth Gulf in 1953. Not until 1966 was oil found again, this time in commercial quantity, at Barrow Island. Several further finds of oil and natural gas were made subsequently, with a possibility of commercial exploitation in the future. However, the most startling progress has been made in the field of iron-ore extraction. In 1960 the Commonwealth Government was persuaded to lift a long-standing embargo on the export of iron ore and this gave a stimulus to exploration and survey which resulted in the location of thousands of millions of tons of ore reserves. With Japan providing a ready market for the ore, and British, American, Japanese and Australian capital available to finance its extraction, developments were very rapid. By 1967 contracts had been approved for the export of 320 million tons of ore, and shipments had well and truly begun; new townships, railways, and port facilities had sprung up in the Mount Goldsworthy, Mount Tom Price, and Mount Newman areas. Moreover, the mineral boom was not confined to iron. Bauxite extraction in the Darling Range was expanding and vast new bauxite reserves were being tested near Gingin and in the Kimberley. And a wild scramble for nickel shares occurred in 1967, following the successful operation of Australia's first nickel mine, at Kambalda, and the discovery of further deposits in the Eastern Goldfields region.

The two post-war decades witnessed significant progress in the field of manufacturing industry, beginning with the opening in 1955 and 1956 of an oil refinery and a steel rolling mill at Kwinana, on Cockburn Sound. By 1968, when a blast furnace was brought into operation, the conversion of the rolling mill into an integrated iron and steel complex was well under way. Other major industrial concerns were attracted to the Cockburn Sound area by the improved transport facilities and favourable terms offered by the Government, and by the late 1960s Western Australia had at last overcome the handicaps which had inhibited industrial development for so long.

Much of the credit for these achievements must be assigned to the State Governments of the period, all of which did their best to promote local industry and draw the attention of the Commonwealth to the needs of the State. In its term of office between 1953 and 1959 the Labour Party presided over the establishment of the oil refinery and steel rolling mill which subsequently became the symbols of a new era in the State's development. The Liberal-Country Party Government, which took over from Labour in 1959 and was still in office in 1968, was even more active in this respect. The Commonwealth was persuaded to make large sums available for beef cattle roads, the Ord River Scheme, and a standard gauge rail link between Perth and the eastern States, in addition to providing for expanding needs in the fields of housing, hospitals, education, transport, and social services. The Liberal-Country Party Government also attracted to the State the vast quantities of private investment capital needed to finance the development of mineral extraction and industrial diversification. Relations between the major political parties remained amicable, whichever was in office, and the differences between them were differences of means rather than ends. In the late 'fifties politics were enlivened by the birth of the Democratic Labor Party, but though this party influenced the outcome of subsequent elections, it was not able to win any seats.

The State's capital city, Perth, and the tempo of life in it, naturally reflected all these developments of the post-war years. The city skyline became higher and more modern as nineteenth century buildings gave way to multi-storeyed concrete and glass structures. The Narrows Bridge, spanning the Swan River just outside Perth, was opened in 1959 and progress was made on a freeway system to cater for increasingly heavy motor traffic. Trams were banished from the city in 1958, and a new Transport Trust took over the responsibility for all metropolitan bus services. The suburbs of Perth sprawled out in many directions to provide accommodation for the growing population. The influence of European migration made itself felt in changes in eating and recreational habits and modes of dress and a slightly more cosmopolitan atmosphere. Something of the characteristic rush and bustle of big cities began to manifest itself, but most Western Australians were determined that the price of progress should not be the erosion of the friendly informality on which they prided themselves.

CHAPTER II—PHYSICAL FEATURES, CLIMATE, FLORA AND FAUNA

Part 1—Physical Features and Geology

Contributed by
Rex T. Prider, B.Sc., Ph.D., F.G.S., M.Aust.I.M.M.
(Professor of Geology, University of Western Australia)

The development of any country depends on its natural resources and the industry of its people, and there can be few more important investigations for any country than those dealing with the productive capacity of its territory. Natural resources—be they power, mineral, or soil resources—are dependent entirely on the climate, physical features and geology. Looking at the pattern of development of Western Australia we see that for nearly seventy years after the foundation of the Swan River Colony in 1829 agricultural production barely kept pace with the requirements of the small population. The discovery of gold in the 1890s, however, led to a period of rapid expansion, and Western Australia became one of the major gold-producing areas of the world, and with this increase in mining production there was a corresponding expansion of the agricultural and pastoral industries. We are now experiencing an expansion of our secondary industries. Moreover today, with the realisation of the extent of the iron-ore deposits of the State, particularly those of the Hamersley Iron Province, and the discovery of important nickel, bauxite and oil deposits, we are entering another period of major development in this country. In each of these phases of development we can, if we look closely, see the dominating influence of the geological environment.

The nature of the rocks underlying any region is one of the major factors controlling topography, soil, and mineral resources. The latter is self-evident. The soil, on which we are so dependent, was formed by the weathering of the underlying rocks and many of its characters are due to the parent rock material. Much research has been carried out into trace element deficiencies in soils and the application of the new knowledge has produced astounding results as far as land utilisation is concerned. At first sight it would seem fantastic to think of the underlying rocks being in any way responsible for malnutrition of stock, but when it is demonstrated that the malnutrition is due to the lack of some minor element in the fodder which is due to its deficiency in the soil, a deficiency which, in its turn, is due to the absence or relative absence of such elements from the parent rocks from which the soil was derived, the significance of the geological environment becomes evident. Topography which is important in connection with land utilisation, water conservation, power (hydro-electric) resources, and in affecting climate, soil erosion, coastal erosion, transport routes, harbours, and so on is also dependent to a great extent on the nature and structure of the underlying rocks.

It is appropriate therefore that we should consider here the physical features and geology of Western Australia since they, together with the climate, are the primary controls of our soil, mineral, water and power resources, on which our existence and future development are entirely dependent.

PHYSICAL FEATURES

In the broadest way this State can be divided into two physical regions: (i) a tableland (the *Great Plateau*) in various stages of dissection occupying the whole of the interior of the State; (ii) a low-lying narrow strip (the *Coastal Plains*) running almost continuously along the coast from near Albany to Broome. A third physical region, the *Scarplands*, separating the Coastal Plains from the Great Plateau, may be distinguished. This,

STIRLING RANGE

Situated some 200 miles south-east of Perth, the Stirling Range rises abruptly from the surrounding plain and is the dominant landmark of the country to the north of King George Sound. The peaks vary in height from about 1,000 feet to 3,600 feet, the highest being Bluff Knoll in the eastern section which reaches 3,640 feet.

The Range forms the basis of the Stirling Range National Park of 285,874 acres which is one of the outstanding botanical reserves in Australia and contains a highly interesting and scientifically important endemic flora. Altogether there are over a hundred species which occur within the Park and are not known elsewhere in the world.



although only a narrow belt, is a significant one in the southern part of the State because of its importance in connection with the water conservation schemes on which the metropolitan area, the major gold-mining field in the vicinity of Kalgoorlie, the intervening agricultural and pastoral districts, the irrigation areas on the coastal plains south of Perth, and more recently the wheat belt along the Great Southern Railway, are dependent.

The Great Plateau

The Great Plateau which occupies more than 90 per cent of the area of the State varies considerably in elevation. In its highest parts (in the North-West) it attains a height of approximately 4,000 feet above sea-level. The greater part is, however, below the 2,000-ft contour and its average elevation is of the order of 1,000 to 1,500 feet above sea-level. Although there is this considerable variation in level the changes are so gradual that the plateau character of the country is not obscured and for the most part it may be regarded as having a vast gently undulating surface. Occasional hills (monadnocks, which are remnants of a previous cycle of erosion) rise above the general surface of the plateau.

The Great Plateau may be conveniently sub-divided into an area of exterior drainage (where there are definite rivers which flow to the sea), an area of interior drainage (where such water as flows passes into inland basins), and two areas of no surface drainage but which, if they had drainage, would belong to the exterior drainage system. The area of exterior drainage can be marked out by connecting the source of the streams which flow to the sea and if this is done it will be seen that the width of the exterior drainage belt varies considerably. Thus in the Kimberley and North-West Divisions some of the rivers are hundreds of miles long, but in the south-west part of the State many of them are comparatively short. The areas of no surface drainage are in the north North-West along the Eighty Mile Beach from the mouth of the De Grey River to the north of Broome, and on the Nullarbor Plain in the south-eastern corner of the State. The remainder of the country forms the interior drainage area.

In the area of exterior drainage the dominant feature of the extreme south-west and the northern part of the plateau is a reticulate pattern of rather deeply-incised watercourses. In the southern part of the State these deeply-incised watercourses where they pass from the plateau to the coastal plains are of great significance (as has already been mentioned) in connection with water supply schemes. Elsewhere in the State the marginal portion of the Plateau is drained by rivers that flow to the sea only at times of exceptional rainfall and, speaking in the most general way, have courses at right angles to the coast.

The area of interior drainage is arid and practically riverless. Small creeks run from the higher parts of the country but they either disappear on the extensive flats or reach the shallow basins which are termed salt or ' dry ' lakes, the term 'dry ' being used since these so-called lakes are free from water except after fairly heavy or long-continued rain. These ' lakes ' are generally elongated, narrow, and often winding salt-encrusted flats arranged in long, more or less connected streams. After heavy rain they are covered with a thin layer of water and, after unusually heavy rain, water has been known to flow southwards from one to another of the ' lakes ' of a string, except towards the western margin of the plateau where the drainage is to the west. It is evident that these elongated ' lakes ' are the remnants of an old river system developed during a more humid period. The salt lakes are of some economic significance since, on the evaporation of the water, common salt and other substances such as gypsum are deposited on the floor of the lake. The gypsum, which crystallises earlier than the common salt, is generally blown from the damp surface of the dried-up lake and deposited as dunes of ' seed gypsum ' on the leeward (eastern) side of the lake. These dunes are utilised, for example at Lake Seabrook north of Yellowdine, as a source of gypsum for plasters. Common salt, which separates later, forms a crust on the floor of the lake when it has been completely dried up and such salt deposits are exploited, for example at Lake Lefroy near Widgiemooltha. In a few of the Western Australian salt lakes significant deposits of alunitic clay have been discovered which have been worked as a source of potash.

Over a large portion of the interior drainage part of the Great Plateau there are extensive sand-plain soils overlying a hard laterite ('ironstone') layer, which is of the order of up to fifteen feet in thickness, below which lies an intensely weathered zone from which most of the nutrient elements so important for plant growth have been leached. These more recent geological formations will be discussed in the section of this Part dealing with geology, but we may note here the significance of this lateritic profile (sandy soils near the surface, 'ironstone' a few feet below, and completely kaolinised rocks still deeper) so far as soil fertility is concerned. This lateritic profile is the result of long-continued weathering processes which have resulted in almost complete leaching of the valuable nutrients and as a result soils developed in any part of this profile are generally very poor in character. It is only where erosion has cut through the lateritic profile and still younger soils have been formed by weathering of the underlying rocks that the better soils are found. As has been mentioned, however, with recent studies of trace element deficiencies much can be done with these 'light' soils by the addition of small quantities of suitable trace elements such as copper and molybdenum.

The areas of no surface drainage include the Eucla Division and portions of the Eastern Division of the State. This area is occupied largely by horizontal or nearly horizontal limestones of the Nullarbor Plain and the drainage here is sub-surface in character through subterranean streams and caverns in the limestone. The Nullarbor Plain is an extensive monotonously level plain standing at a height of about 600 feet above sea-level. The Western Australian part of the Nullarbor Plain is bordered to the south by a narrow coastal plain but further east, at the head of the Great Australian Bight, in South Australia, this coastal plain is absent and the southern edge of the Plain is truncated by cliffs which rise almost sheer for 200 to 400 feet above sea-level.

The hills of the Great Plateau are of two kinds, ridged and table-topped. In the southern half of the State the ridged hills, a few of which rise as much as 1,500 feet above their surroundings, are generally elongated in a north-north-west direction, reflecting in their trend the structure of the underlying rocks. The table-topped hills are seldom more than 200 feet above the general level. They are capped with a sub-horizontal layer of laterite ('ironstone') and bounded by low cliffs, in many places undercut, which are known in Western Australia as 'breakaways'. The table-topped hills are relics of erosion of a former laterite-covered peneplain (the *Darling Peneplain*) which was uplifted in Pliocene times to form the Darling Plateau and has subsequently been subjected to erosion under semi-arid conditions. The ridged hills on the other hand are elongated monadnocks which, being cored by resistant rocks such as jasper bars, withstood erosion and so rise above the general level of the remnants of the laterite-covered Darling Plateau.

The Great Plateau slopes down very gradually to the south and west. The downward slope to the south is interrupted by a narrow broken chain of rugged hills, the Stirling and Mount Barren Ranges which rise to heights of from 1,000 to 3,600 feet above sea-level. The western margin of the Plateau is, in the south, formed by the 'Darling Range' which, being merely the dissected margin of the Plateau, is much better called the *Darling Scarp*. This Darling Scarp is clearly defined between latitudes 31° 30′ S. and 33° 30′ S., *i.e.* between Moora and Donnybrook, but it is difficult to recognise farther north or south. In the Kimberley Division the mountain ranges are the relics of erosion between the deeply-incised rivers and in this region the highlands of the plateau terminate abruptly along a steep, deeply-indented coastline.

The Coastal Plains

Bordering the Great Plateau are the Coastal Plains which vary in width. The *Swan Coastal Plain* which extends from the neighbourhood of Perth to near Busselton averages about fifteen miles in width and is divisible into the following belts: a narrow band of moving sand dunes along the coast; a zone, averaging three or four miles wide, of sandy limestone which rises in places to heights of 100 to 200 feet above sea-level; a zone three or four miles wide of loose sand fixed by vegetation; and, abutting against the Scarp which forms the western margin of the Plateau, a zone of clayey soils of about the same width. A strip of low plain extends along the coast at intervals as far north as King

Sound and coastal plains of some width occur near Port Hedland and Exmouth Gulf. A narrow plain fronts the cliffs of the Great Australian Bight for some distance and also occurs in other places along the south coast.

The coastline of Western Australia, some 4,350 miles in length, is broken by capes between Wyndham and Broome, between Port Hedland and Shark Bay, and between Cape Naturaliste and Israelite Bay. The intervening parts are comparatively featureless.

It has only been possible here to briefly outline the principal physical features of Western Australia and for a fuller description of the physiography of this State the reader should consult J. T. Jutson's 'Physiography (Geomorphology) of Western Australia' (*Geol. Surv. West. Aust. Bull.* 95).

GEOLOGY

More than two-thirds of Western Australia is occupied by the ancient Australian Precambrian Shield which is composed of a complex of igneous, metamorphic and sedimentary rocks formed more than 600 million years ago. Most of our mineral deposits of economic importance, except coal, oil and water and superficial deposits such as lateritic iron ore and bauxite deposits and black sand and other alluvial accumulations, occur in these Precambrian rocks. The remainder of the State is occupied by sedimentary basins in which Palaeozoic and later sediments are developed. It is in these younger sedimentary basins that artesian water, coal, oil and natural gas are likely to occur. Finally there are the still younger superficial deposits—laterites, salt-lake deposits, and soils on which much of the economy of this country depends. It will be convenient therefore, in outlining the geology of the State, to consider it under the three main headings:

(*a*) The Precambrian basement;

(*b*) The sedimentary basins;

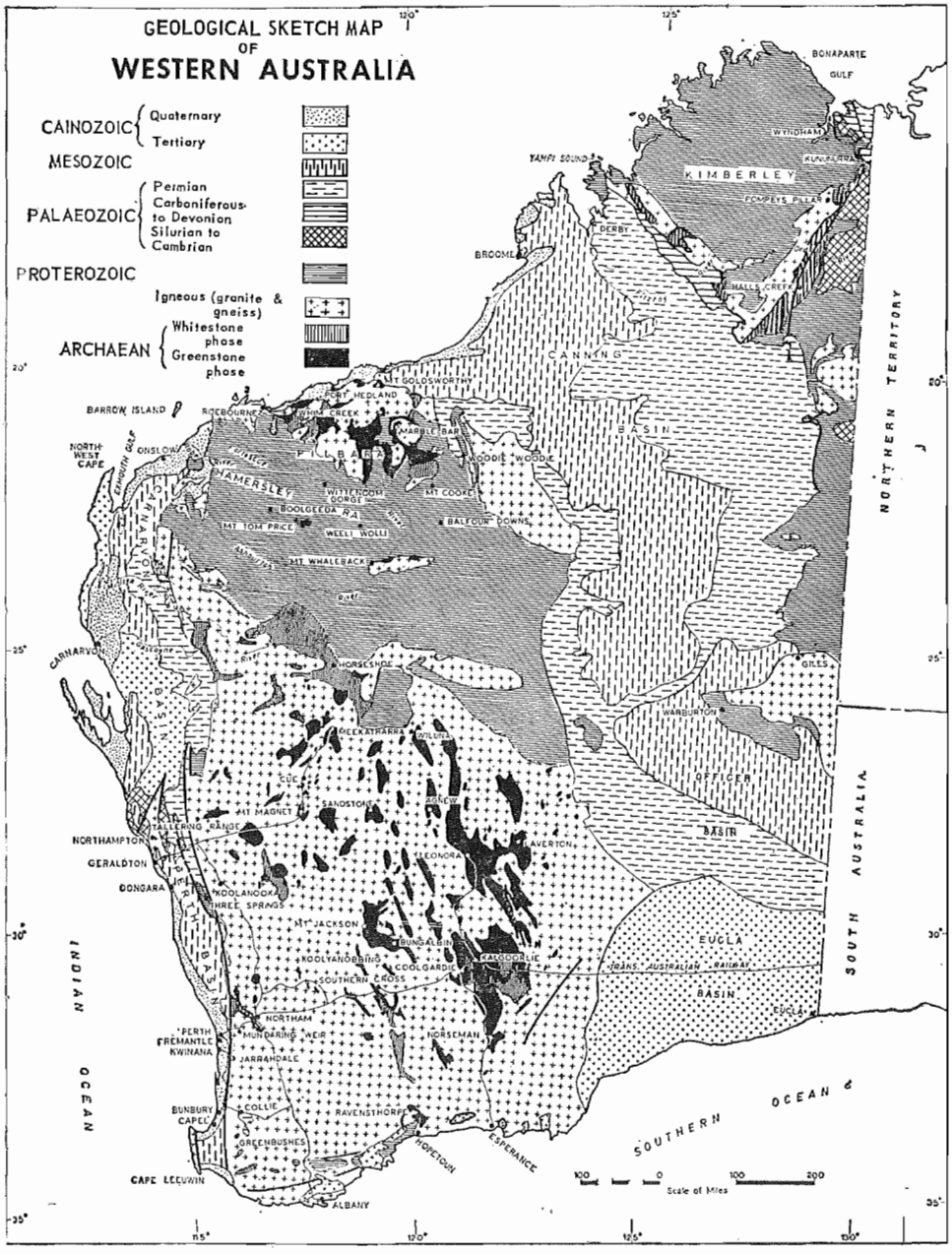
(*c*) The superficial deposits.

The distribution of the solid rocks (omitting superficial deposits) is shown in the accompanying map (see page 20).

The Precambrian Basement

This includes the Archaean and Proterozoic rocks. The Archaean is a complex of crystalline igneous and metamorphic rocks, dominantly granites and gneisses with minor amounts of basic igneous and schistose metasedimentary formations. In places, particularly in the North-West and Kimberley Divisions, this Archaean complex is overlain unconformably by sedimentary and volcanic rocks of Proterozoic age which do not exhibit the extensive metamorphism so characteristic of the older Archaean complex. The time-boundary between the younger Precambrian (Proterozoic) and older Precambrian (Archaean) is approximately 2,200 million years ago. Within the different areas occupied by the Precambrian rocks the same generalised sequence can be distinguished.

In the Kimberley the oldest rocks are metamorphosed igneous and sedimentary rocks intruded by granite and carrying in places auriferous and base metal ore deposits, and these are overlain by un-metamorphosed sediments with basic igneous intrusives. The Precambrian age of all these rocks is evidenced by the fact that in the East Kimberley they are overlain by sedimentary rocks containing fossils of Cambrian age. This is the only area in Western Australia where the Precambrian age of the rocks of this crystalline complex can definitely be proved on stratigraphical evidence alone. In the southern part of the State we find a similar sequence of crystalline schists with intrusive granites and by lithological correlation (which is not a very sound method) we assume that they are Precambrian although they cannot actually be traced through from the Kimberley. We do know that in the Carnarvon Basin these gneisses, schists and granites are older than the Devonian, which unconformably overlies them, and in the Perth Basin they are older than the Permian. During recent years the Precambrian age of these rocks has been confirmed by actual age determinations based on the decay of radioactive elements which occur in them. This work indicates that the bulk of the massive granitic intrusions of the southern



GEOLOGICAL MAP OF WESTERN AUSTRALIA

from Clarke, Prider and Teichert, ' Elements of Geology for Western Australian Students', by courtesy of University of Western Australia Press)

part of the State crystallised from a molten state some 2,700 million years ago. Some, however, such as those in the vicinity of Albany and along the south coast, are much younger, being emplaced approximately 1,100 million years ago.

The Precambrian sequence in the North-West Division appears to be the most complete that is present in Western Australia and, from oldest to youngest, is as follows.

The *Warrawoona Succession*, which consists mainly of greenstones and green schists which were, prior to the intense folding and metamorphism to which they were subjected after deposition, basaltic lavas and tuffs with interbedded chemically deposited secondary rocks (jaspilites or banded iron formations) in the upper part of the sequence. These jaspilites have been the protores of important iron-ore deposits such as those of Mount Goldsworthy. The Warrawoona Succession is overlain by a succession (the *Mosquito Creek Succession*) of sedimentary rocks which have also been intensely folded and metamorphosed to various types of platy-structured schists, slates and quartzites. Both the Warrawoona and Mosquito Creek Successions are invaded by granitic igneous rocks emplaced approximately 2,700 million years ago and both carry auriferous orebodies possibly genetically related to the intrusive granites. End-stage products of these granites are the very coarse-grained pegmatites which are important carriers of tantalum, beryllium, lithium and tin-bearing minerals. All of these rocks in the North-West Division —the Warrawoona and Mosquito Creek Sucessions and the granites intrusive into them— are therefore of Archaean age and have been called the *Pilbara System*. Still younger sedimentary rocks such as conglomerates, sandstones, shales and banded iron formations with interbedded basic igneous rocks, were deposited unconformably on the highly-folded, granite-intruded Pilbara System. This thick succession consits of a number of distinct groups. The three lower groups (the *Fortescue*, *Hamersley* and *Wyloo Groups*) are of Lower Proterozoic age as the youngest (the Wyloo Group) is intruded by granite aged approximately 1,700 million years. The two upper groups (the *Breshnahan* and *Bangemall Groups*) are of Middle and Upper Proterozoic age respectively. Of these Proterozoic rocks the Hamersley Group is most important economically since most of the iron-ore deposits of the Hamersley and Ophthalmia Ranges occur within, or have been derived from, the thick jaspilites (banded iron formations) within this group. Except in occasional narrow belts marginal to the Archaean blocks, the Proterozoic rocks have not suffered the intense folding that affected the older rocks and consequently they are generally flat-dipping to horizontally bedded un-metamorphosed sediments. Such sediments cover very extensive areas in the North-West (see Geological Map of Western Australia on page 20) and they are similar in many respects to the flat-dipping Proterozoic sediments which cover the plateau country of the North Kimberley. The final episode in the Precambrian history of the North-West was the intrusion of dolerite dykes and sills into all of the earlier rocks.

Coming to the southern half of the State we find a similar sequence to that in the North-West. In the part of the Precambrian Shield extending south of latitude 26° S. the oldest rocks that are recognised are the greenstones of the various gold-mining fields which occur in comparatively narrow belts elongated in a general NNW. direction (see map, page 20). These greenstones, which are for the most part metamorphosed basaltic lavas, contain interbedded jaspilites and are overlain by metamorphosed sedimentary rocks (generally referred to as whitestones). This System of rocks is the *Kalgoorlie-Yilgarn System*. From the mining point of view it is most important since the auriferous ore deposits of the main mining fields are confined to it and it also contains, in the jaspilites, important iron-ore deposits such as those of Koolyanobbing in the Yilgarn. It appears to be the equivalent of the Pilbara System of the North-West. After the formation of the Kalgoorlie-Yilgarn rocks they were intensely compressed into tightly closed folds with NNW.-trending axes. During this period of intense earth-movement alkaline solutions permeated the older rocks, converting them into granitic gneisses which occupy the bulk of the southern half of Western Australia. Subsequently granite magma was intruded as in the North-West. This completes the Archaean sequence. The Proterozoic is represented by a narrow strip of slightly altered sedimentary rocks along the

Darling Scarp and the rocks of the east-west Stirling and Mount Barren Ranges along the south coast. As in the North-West all of these Precambrian rocks are intruded by dolerite dykes.

Putting together the information available throughout the State, we conclude that the oldest rocks found in Western Australia belong to the older part of the Archaeozoic Era. It is a great succession of rocks, generally much metamorphosed, which is called the Kalgoorlie-Yilgarn System in the southern part of the State and the Pilbara System in the North-West region. In the early part of Kalgoorlie-Yilgarn times there was much volcanic activity which took the form of eruptions of basic and intermediate lavas, tuffs, and breccias. These were penetrated, shortly after their extrusion, by intrusions from the same magma; similar events must be occurring now in the interior of great volcanic masses like Etna or Hawaii. In later Kalgoorlie-Yilgarn times, the dominant process was sedimentation, so that the earlier volcanic rocks, with the minor associated bands of sediment, became overlain by a great thickness of sandy and clayey sediments. These sediments must have been derived from some land mass composed of rocks of pre-Kalgoorlie-Yilgarn age but this, possibly the oldest of all rock assemblages, has apparently not yet been found in Australia or any other part of the World.

After the accumulation of the Kalgoorlie-Yilgarn System came a period of intense earth-movement during which the rocks were, in most places, closely folded and regionally metamorphosed. The folding was accompanied by widespread granitic intrusions, some of which consolidated into primary gneisses whereas others soaked into the Kalgoorlie-Yilgarn rocks, penetrating them along bedding planes, joints, and other fractures, and so forming hybrid granitic gneisses by granitisation.

Where they were not affected by this First Granite Invasion, the volcanic rocks of the Kalgoorlie-Yilgarn System were regionally metamorphosed, in some places very strongly into dark-coloured schists, in others only very slightly. Similarly, the sedimentary rocks of the Kalgoorlie-Yilgarn System, where they have escaped the first granite invasion, *i.e.* have not been granitised, are in some places but slightly regionally metamorphosed, in others they are converted into various types of schist and quartzite.

All the Archaean rocks described above were invaded by the ' Younger ' Granite, which, unlike the ' Older ' Granite, formed well-defined intrusions many of which are stocks, though smaller offshoots from the same magma, in the form of ' porphyry dykes,' occur at nearly every mining centre. These events occurred after the folding but before Proterozoic times. Any of the Archaean rocks in Western Australia may contain ore-bodies yielding gold and other minerals of economic value. It seems likely that many of these ore-deposits were formed at the time of the Second Granite Invasion which, from radioactive age determination studies, occurred about 2,700 million years ago. Important iron-ore deposits occur in the Archaeozoic rocks at many localities, for example at Mount Goldsworthy in the Pilbara,Tallering Peak in the Yalgoo Goldfield, and Koolyanobbing, Bungalbin and many other localities in the North Yilgarn. These are all banded ironstone deposits which are interbedded with the basaltic lavas and sedimentary rocks of early Archaean age. In many places there are important manganese deposits associated with these banded iron formations. A rich nickel deposit discovered in ultrabasic Archaean rocks at Kambalda near Kalgoorlie in 1966, has now become an important source of nickel concentrates. Base metal ore deposits, such as nickel, cobalt and chromium, are generally associated with ultrabasic igneous rocks. Ultrabasic rocks are intrusive into the older Archaean volcanic and metasedimentary rocks of the Kalgoorlie-Yilgarn System in the country between Norseman and Laverton and, following the discovery of important nickel deposits at Kambalda and Scotia in the vicinity of Kalgoorlie and Mount Windarra near Laverton, these areas are being carefully examined to assess their prospects for base metal deposits.

Finally, in Proterozoic times we had the deposition, under shallow-water conditions, of conglomerates, sandstones, shales and banded iron formations and another period of volcanic activity yielding basaltic lava flows. Other than in a few narrow belts these rocks have not suffered the intense earth movements which affected the older rocks, and so are practically un-metamorphosed. Important blue asbestos deposits in these rocks have

been exploited at Wittenoom Gorge in the Hamersley Range of the West Pilbara. The asbestos deposits occur in banded ironstone formations which also contain large iron-ore deposits. The well-known iron-ore deposits of Cockatoo and Koolan Islands in Yampi Sound, which have been exploited for many years, are metasedimentary deposits of Late Proterozoic age. Although the Proterozoic rocks cover extensive areas in the northern parts of the State they have largely been stripped off the southern half by erosion. The final episode in the Precambrian history of this State was the widespread intrusion of dolerite dykes approximately 550 million years ago. Small lead and copper deposits are closely associated with these dolerite intrusions in the Northampton Mining Field, where the discovery of a lead-copper deposit at Waneranooka led, in 1842, to the first metal mining operations in Australia.

The Sedimentary Basins

There are five major post-Proterozoic sedimentary basins in Western Australia—the *Bonaparte Gulf Basin* in the north-east part of the Kimberley Division extending into the Northern Territory, the *Canning Basin* of the West Kimberley, the *Carnarvon Basin* of the North-West, the *Perth Basin* extending from lat. 29° S. to lat. 33° S. and the *Eucla Basin* occupied by the Nullarbor Plain. Large areas of the Central Division are covered by sediments of the *Amadeus Basin* of Central Australia and the shallow *Officer Basin*. In addition to these major basins there are smaller basins such as that at Collie and scattered areas where sediments, which are dominantly lacustrine in nature, have been deposited. In these sedimentary areas we find sediments ranging from Lower Palaeozoic to Pleistocene in age. These sediments of Palaeozoic and later age are, as a rule, less disturbed than those of Precambrian times and many are abundantly fossiliferous. Therefore, there is a sure means of correlating formations even in widely separated places, and so our knowledge of the history of these sedimentary areas is more detailed than in the much altered, highly folded, unfossiliferous Precambrian rocks of the basement.

Apart from the superficial deposits the economic significance of these basins is confined to their possibilities for the occurrence of artesian water, coal, oil and natural gas. A prime requisite for the occurrence of artesian and sub-artesian water is the occurrence of interbedded strata of varying porosity and permeability. These conditions are met in a number of the sedimentary basins in Western Australia and the development of the pastoral industry in the arid or semi-arid parts of these basins has been largely dependent on the occurrence of artesian water. In the metropolitan area, artesian bores are an important source of water supplies. Coal deposits are also confined to areas of sedimentary rocks and occur in the Permian rocks of two of the minor basins, namely the *Collie* and the *Irwin River Basins*, and in the Lower Jurassic sediments of the Perth Basin (at Eneabba, where a seam 100 feet thick has been found at a depth of 6,000 feet in a borehole sunk in search for oil, and is indicated in shallow shot-holes in the Hill River area). Up to 1966 the coal deposits of the lacustrine Permian beds of the Collie Basin constituted the only power source in Western Australia, since oil of commercial significance had only then been proved and the gently undulating topography combined with low rainfall make the hydro-electric resources insignificant. So far as oil is concerned the first occurrence of flow oil in Australia was encountered in Rough Range Bore No. 1, in the Carnarvon Basin, late in 1953. This discovery of flow oil resulted in an increase in the rate of geological exploration of all the major sedimentary basins. The results of extensive geological mapping, geophysical surveys and exploratory drilling have to date been rather disappointing. However, a commercial field was proved at Barrow Island off the north-west coast in 1966. Other oil occurrences have been located at various localities in the Perth Basin, *e.g.* in the vicinity of Dongara and this indicates the presence of suitable source material and conditions for oil formation and preservation. Moreover, oil search drilling operations have located some widely-spaced finds of natural gas in considerable quantities, which may ultimately prove to be of commercial significance. The possibilities, therefore, of locating other commercial oilfields in the Carnarvon, Canning and Perth Basins are by no means exhausted and the search is being actively continued both on land and offshore in the continental shelf area.

A detailed description of the sedimentary formations of different ages, from the Cambrian to the Recent, in the various sedimentary basins has been set down in 'The Stratigraphy of Western Australia' (*Journal Geological Society of Australia*, volume 4, part 2, pp. 1-161, 1958). It is proposed here merely to indicate the main features of the various basins.

The *Bonaparte Gulf Basin*, in the East Kimberley, extends into the Northern Territory. As already mentioned, this and the nearby Ord Basin are the only basins in Western Australia where rocks of proved Cambrian age are exposed. On Western Australian territory the Cambrian rocks extend as a narrow belt along the interstate border between lat. 16° 15′ S. and lat. 18° 30′ S., reaching westward from the border for 15 to 75 miles. The Cambrian consists of basalts at the base of the sequence, overlain by Middle Cambrian fossiliferous limestones, shales and sandstones. There is a small development of sandstones which are considered to be of Lower Ordovician age, following which there is a big time gap and the next youngest formations are sandstones and limestones of Upper Devonian and Lower Carboniferous age. Upper Carboniferous and Lower Permian formations are absent, the next marine transgression being in the Middle Permian when a thick sequence of conglomerates, sandstones, and limestones was deposited. The only other sedimentary rocks in this basin are freshwater sediments (siltstones, marls and cherts containing freshwater fossils) of late Tertiary age.

The *Canning Basin* (formerly named the Desert Artesian Basin), in the West Kimberley, extends from the coast between Derby and the De Grey River in a south-easterly direction almost to the 128° meridian (see map, page 20). The north-east or Fitzroy part of this basin is a deep trough estimated, from aeromagnetic geophysical surveys, to contain a thickness of the order of 20,000 feet of sedimentary strata ranging in age from Ordovician to Triassic. It was in this area that bores seeking oil were first drilled in Western Australia, following the discovery in 1919 of traces of oil in a water bore on Gogo Station. The larger Canning Desert portion, the South Canning Basin, is covered by a relatively thin Mesozoic and Permian sequence, but geophysical work followed by some deep drilling has indicated that there are deep depressions in this area, the deepest of which is the Kidson Sub-basin, which has a basement approximately 20,000 feet below the surface.

The oldest Palaeozoic sediments in the Fitzroy portion of the basin are richly fossiliferous limestones of Ordovician age outcropping near Price's Creek. These are overlain by Devonian reef limestones, sandstones and conglomerates, followed by Carboniferous sandy limestones. These in turn are followed by a thick Permian sequence of sandstones (of marine glacial origin deposited from floating ice), fossiliferous calcareous shales and limestones, and in Upper Permian times fossiliferous ferruginous siltstones and sandstones. All of these formations dip gently in a general south-westerly direction towards the centre of the basin but these regional dips are interrupted by local folding. Shale and sandstone beds of Triassic age occur in the Fitzroy section of the basin. The youngest rocks in this area are igneous intrusions in the form of intrusive sheets, dykes, and volcanic necks which have been found intruding all rocks of the sequence from the Precambrian granitic basement to the youngest sediments (Triassic) present. These igneous rocks, from direct geological evidence, are of post-Triassic age, and radioactive age determinations made in 1959 indicate that they were intruded 180 million years ago (*i.e.* in Jurassic times). This is one of the two areas in the whole of Western Australia where post-Cambrian igneous activity is known. It is interesting to note the occurrence of a small lead deposit in Devonian limestone at Narlarla in the Napier Range. This is the *only* metallic ore deposit of post-Proterozoic age known in Western Australia and it may be genetically related to the Jurassic igneous activity or may have been deposited from sea water by organisms during Devonian times.

In the Canning Desert section of the basin the Palaeozoic rocks are not well exposed and the greater part of this portion of the basin (where not obscured by superficial unconsolidated sands) is occupied by Mesozoic sediments ranging in age from Lower Jurassic to Lower Cretaceous. The deep depressions in the floor of the South Canning Basin

are filled with Palaeozoic sediments as proved by the first deep oil test well (Kidson No. 1) which was abandoned at 14,539 feet in Lower Ordovician limestone. There is no evidence in the entire basin of any marine transgression after Lower Cretaceous times.

The *Carnarvon Basin* (formerly called the North-West Artesian Basin) has been the most intensively studied of the major sedimentary basins in Western Australia. It extends along the west coast from Onslow near the mouth of the Ashburton River as far south as the mouth of the Murchison River (see map, page 20), the maximum width of the basin being 125 miles at the latitude of Carnarvon. In this basin the eastern portion up to fifty miles wide is occupied by a thick sequence of marine Palaeozoic sedimentary rocks ranging in age from Middle Devonian to Upper Middle Permian, all of which have a westerly regional dip. The estimated maximum thicknesses of the Palaeozoic strata are:

Permian	13,175 feet
Carboniferous	2,510 feet
Devonian	5,120 feet

This Palaeozoic sequence which consists of fossiliferous Devonian limestones and sandstones, Carboniferous limestones and Permian marine glacial beds, limestones, sandstones, and shales, is almost entirely marine in origin. In the Carnarvon Basin we have the only wholly marine Permian sequence in Australia, and without doubt *one of the thickest marine Permian sequences in the World.*

No rocks of Silurian age were known from the western half of the Australian continent until 1957 when a bore sunk by West Australian Petroleum Pty. Ltd. at Dirk Hartogs Island in Shark Bay encountered limestones of Silurian age underlain by sandstones which are now correlated with the reddish sandstones which outcrop in the lower reaches of the Murchison River.

To the west the Permian rocks are unconformably overlain by Cretaceous sandstones, shales, marls and limestones attaining a total thickness of 2,000 feet. It is the basal formation, the *Birdrong Sandstone*, of the Cretaceous sequence that is the oil sand encountered in Rough Range Bore No. 1. Another Cretaceous formation, the Windalia Formation, is one of the important oil reservoirs of the Barrow Island Oilfield The Cretaceous rocks outcrop in a north-south belt averaging fifty miles wide between the Palaeozoic and Precambrian rocks on the east and the Tertiary limestones to the west. The only other Mesozoic formation exposed at the surface in this basin is a Jurassic sandstone twenty-five feet thick. However, a deep well (Cape Range No. 2) drilled in search of oil at Exmouth Gulf, after passing through the base of the Cretaceous at 3,707 feet, entered the Lower Jurassic which extended to the depth of 15,169 feet at which the bore was discontinued, thus proving a thickness of at least 11,462 feet of Lower Jurassic strata in this area. It is apparent that there is a marked thickening of the Mesozoic formations from east to west in this area. The westernmost belt of the Carnarvon Basin is occupied by Tertiary strata, mainly limestones, which are well exposed in the Rough and Cape Ranges of the Exmouth Gulf area. These limestones, which range from Lower Miocene to Pliocene in age, total 1,200 feet in thickness and are discontinuously overlain by Pleistocene and Recent beds approximately 450 feet thick. Marine Tertiary sediments which are so well developed along the western margin of the basin extend as a thin discontinuous formation unconformably over the Permian beds of the eastern part of the basin, indicating that in Upper Eocene times the sea transgressed practically the whole of the Carnarvon Basin.

The sedimentary rocks of the Carnarvon Basin were affected by earth movements at various times. Even the youngest of the Tertiary rocks have been thrown into gentle folds which are significant so far as the search for oil is concerned because, in addition to having suitable conditions for the formation and preservation of oil, suitable structures are necessary for its concentration into local areas (oil 'pools'). So far as structure is concerned, the general picture of the Carnarvon Basin is the gentle westerly regional dip of the Palaeozoic sediments of the eastern half of the basin and the gentle dome and basin folding of the western half.

The *Perth Basin* (formerly called the Coastal Plain Artesian Basin) is a narrow elongated basin on the western border of Western Australia extending from Geraldton in the north to Cape Leeuwin in the south. At Geraldton it is thirty miles wide and is flanked both to the west and east by Precambrian crystalline rocks (mainly gneisses). The maximum width of the basin is approximately fifty miles at Watheroo and it narrows again to the south being approximately thirty miles wide in the sunkland between Busselton and Augusta. At this southern end it is again flanked both to the east and west by Precambrian rocks. The surface of the basin is mostly covered by Recent sands but occasional outcrops of rocks as old as the Permian occur in places. The only evidence available regarding the structure, thickness and age of the sediments in the basin is that provided by geophysical surveys, some deep bores sunk in the search for oil and a number of water bores up to 2,400 feet deep in the metropolitan area. Gravity surveys indicate that there is a very considerable thickness of sediments, perhaps exceeding 30,000 feet, and it is probable that in this basin we have a complete succession from the Younger Proterozoic (*Cardup Group*), which outcrops along the Darling Scarp, to the Recent sands. Other than the Proterozoic of the Darling Scarp, the oldest sediments exposed are the gently folded Permian marine sediments of the *Eradu* and *Irwin River Basins* at the north end of the main basin. The Permian sediments of the Irwin River area have a total thickness of 4,000 feet and vary from marine glacial beds at the base (as in the Carnarvon and Canning Basins) through fossiliferous marine shales and limestones to lacustrine sandy sediments with coal seams in the upper part of the sequence. Marine and continental Jurassic limestones and sandstones outcrop east of Geraldton and Jurassic beds, overlain by Cretaceous chalks and greensands, occur near Gingin and Dandaragan. In the southern part of the Perth Basin the oldest rocks exposed (if we except the Permian of the separate minor *Collie Basin* which is situated well to the east of the Darling Scarp in a glacially-gouged trough) are the Cretaceous *Donnybrook Sandstones.*

In the vicinity of Perth, artesian bores to a maximum depth of 2,400 feet expose a sequence varying from Jurassic sandstone at depth, through Cretaceous and Eocene shales. The *King's Park Shale* of Eocene (older Tertiary) age is overlain by Pleistocene aeolian sandstones of the *Coastal Limestone Formation*, the base of which is approximately 100 feet below sea-level. There is therefore a big gap in the succession here between the Eocene and Pleistocene. Many boreholes have been sunk in the north-central part of the basin in the course of oil search operations. Boreholes near the coast (at Jurien Bay and Beagle Ridge) struck Precambrian crystalline basement rocks at comparatively shallow depths of 3,360 feet and 4,860 feet. The sediments thicken further inland, as evidenced by the increasing depth to the Precambrian basement in Cadda No. 1 (9,002 feet), Woolmulla No. 1 (9,218 feet) and Arrowsmith No. 1 (11,220 feet). Very thick sedimentary sequences have been disclosed by Eneabba Bore No. 1 (which bottomed in Lower Triassic at 13,712 feet) and Gingin No. 1 (in Lower Jurassic at 14,908 feet). Some deep wells have been drilled to the south of Perth, namely Pinjarra No. 1 which bottomed in Upper Triassic sandstone at 15,001 feet; in the far south (near the south coast), Sue No. 1 which encountered Precambrian granulites at 10,021 feet; near Perth, Cockburn No. 1 which was abandoned at 10,020 feet in Lower Jurassic sandstone; Whicher No. 1, near Busselton, which reached a depth of 15,266 feet in Permian sandstone before being abandoned; and Blackwood No. 1, abandoned at 10,939 feet in Permian sediments. The first offshore well in the Perth Basin (Quinns No. 1), spudded in on 10 October 1968 at a location approximately twenty miles north of Rottnest Island, was drilled to a depth of 7,248 feet without finding hydrocarbons. Some oil was found in a second offshore well (Gage Roads No. 1), drilled to a depth of 12,009 feet, approximately nine miles north-west of Rottnest Island.

Oil search operations in the Perth Basin have led to the discovery of significant oil and gas in the vicinity of Dongara near the northern end of the Basin and gas at Gingin, about fifty miles north of Perth but, as yet, these discoveries have not been proved as oil or gas fields. The materials of economic significance in the Basin are coal, artesian water, limestone from the Pleistocene Coastal Limestone which is used as a source of lime and as

building stone (' Cottesloe Stone '), and sand for building material. In addition, the Coastal Limestone contains picturesque caves of tourist attraction such as those of Yanchep, Yallingup and Margaret River.

The only evidence of igneous activity in the Basin is the Cretaceous basalt of the sunkland between Bunbury and Cape Gosselin on the south coast.

Very little is known about the structure of this basin. It is bounded to the east by a large fault or monoclinal fold. The evidence available indicates that the main structural character of the deeper part is a regional dip to the east (of 15° to 20°) traversed by north-south trending faults with down-throws to the west. There is an unconformity (Upper Jurassic to Lower Cretaceous) at a depth of approximately 2,000 feet above which the Cretaceous and Tertiary sediments are almost horizontal.

The *Eucla Basin* occupying the Nullarbor Plain, in the south-eastern corner of the State is occupied at the surface by marine fossiliferous Middle Tertiary (Miocene) limestones with a marginal belt of Lower Tertiary (Eocene) limestones. The Tertiary rocks lie on sandstones and shales of probable Cretaceous age, which in turn overlie the Precambrian crystalline rocks. Little is known of the details of the stratigraphy and structure of the Eucla Basin since the beds are very flat-lying and have only been penetrated by water bores in a few places such as Madura near the coast and Loongana on the Trans-Australian Railway. The Madura bore is artesian but bores along the Trans-Australian Railway have only yielded sub-artesian water (*i.e.* the water will rise under pressure only part of the way to the surface). The oil prospects of this basin are poor because of the comparatively small thickness (2,000 feet) of the sediments and the absence of suitable folded structures to form oil traps.

The *Collie Coal Basin.* Of the minor basins and isolated occurrences of post-Proterozoic sediments, Collie, since it is the only operating coalfield in Western Australia, is the only one which will be considered here. It is situated approximately 100 miles SSE. from Perth, and has an area of about 100 square miles. Actually it is made up of two basins separated by a sub-surface granitic ridge. It is composed of sandstones and shales with interbedded coal seams and is surrounded by Precambrian rocks. The coal measures, of Permian age, are of the order of 2,000 feet in thickness of which approximately 130 feet is coal. The actual contact between the Permian coal measures and the Precambrian granitic basement has nowhere been seen at the surface but has been encountered in deep drill holes in various parts of the Basin. Such drill holes reveal that Permian mudstone containing granite pebbles lies on an ice-planed surface of the Precambrian granitic rocks. This suggests that the Collie Basin, formerly considered to be a block of the Permian downfaulted into the Precambrian basement, is actually a glacially-gouged trough formed by terrestrial glaciation in the Permian and since filled with Permian lacustrine sediments. Coal occurs at three horizons and the seams, which average six feet in thickness, persist over fairly long distances. From the associated plant fossils these coal measures appear to be comparable in age with those of the upper part of the Permian sequence at the Irwin River near the northern end of the Perth Basin.

The Superficial Deposits

Over a great part of the State fresh rock outcrops are comparatively sparse and are covered by highly-weathered rocks, laterite, drift sand, soils, and, in the salt lake country, by thin evaporite deposits.

Laterite. In the southern half of the State the remnants of the Darling Plateau are covered by a thin layer up to ten or fifteen feet thick of a reddish-brown rock composed of spherical pebbles tightly or loosely cemented together by a lighter-coloured earthy matrix. This material in its poorly consolidated state is popularly referred to as ' ironstone gravel ' and when strongly cemented as 'ironstone'. This rock, called laterite, although it covers large areas, is purely superficial and wells or bores sunk in it pass within a few feet into highly weathered country rock which may extend down for distances up to 100 feet before encountering fresh unweathered rock. This laterite crust and the underlying highly weathered country rock were developed on a gently undulating surface

during a period of warmer, more humid, climatic conditions. These tropical conditions probably existed in Late Tertiary (Pliocene) times when a great part of Western Australia had been reduced by long-continued erosion to a peneplain lying close to sea-level, or soon after, when this peneplain had been uplifted to form the *Darling Plateau.* This uplift, judged by the elevation of the laterite-capped hills and the occurrence of fossiliferous marine Eocene sediments 900 feet above sea-level at Norseman, was of the order of 1,000 feet. On the Great Plateau, remnants of this Darling Plateau are evidenced by the table-topped hills so characteristic of much of the Plateau country. The significance of the laterite profile and the soils developed from the laterite and associated weathered rocks has already been mentioned. Economically, the laterite is important for road-making materials and in a few places (such as Wundowie) as an iron ore. The main constituents of the laterite are the insoluble products of intense rock weathering—iron oxide, alumina and silica. In many places the alumina content is sufficiently high to call them bauxites. Bauxites are the main source of aluminium, and the bauxitic laterites of the Jarrahdale area in the Darling Range near Perth are being exploited as aluminium ore.

The mid-Tertiary land surface of the southern half of Western Australia on which the laterite profile was developed at a time when this country was subjected to a tropical climate extends into the northern part of the State. In the Hamersley Iron Province of the North-West Division this old land surface truncated the Lower Proterozoic banded iron formations of the Hamersley Group. At and below this old land surface, (the *Hamersley Surface*) which can be traced without tectonic break from sea-level to elevations of 4,000 feet, there was a secondary concentration of the iron of the Lower Proterozoic rocks resulting in extensive rich iron-ore deposits which make this area one of the richest iron provinces in the World.

In the far south-west of the State sub-surface hard pan formations consisting of ferruginous sandstone are a potential source of low-grade iron ore.

Soils and drift sands. Western Australia, an area of 975,920 square miles extending from lat. 13° 44′ S. to lat. 35° 08′ S., although having little variety in its broad physical features, has very considerable variation in climates from the tropical areas of summer rainfall in the north through a central and inland province of low rainfall to the temperate areas of winter rainfall in the south. Moreover, throughout this enormous area there is very considerable variation in the nature of the country rocks. The nature of the soils developed is dependent on these two factors—climate and parent rock—so it will be apparent that there will be very considerable variation in the soils over this extensive area. L. J. H. Teakle has recognised the following major soil zones of Western Australia:

1. Grey, yellow and red podsolised, or leached, soils of the temperate sclerophyll forests.
2. Red-brown earths of the eucalyptus-acacia woodlands.
3. Grey and brown calcareous, solonised soils of the low rainfall eucalyptus woodlands—(' mallee ' soil zone of Prescott).
4. Red and brown acidic soils of the acacia semi-desert scrub—mulga, etc.
5. Brown acidic soils of the spinifex semi-desert steppes of the North-West.
6. Pinkish-brown calcareous soils of the Nullarbor Plain desert shrub steppes.
7. Pinkish-brown calcareous soils of the acacia semi-desert scrub, mallee and salt bush-blue bush zone.
8. Brown soils of the tropical woodlands, savannahs and grasslands.
9. Red sands of the central desert sandhills—spinifex with desert acacias, desert gums and mallees (*Eucalyptus spp.*).

Each of these major soil zones may be subdivided into one or more soil regions and the reader is referred to a paper ' A Regional Classification of the Soils of Western Australia, by L. J. H. Teakle (*Jour. Roy. Soc. West. Aust. XXIV*, pp. 123-95) for details concerning the soil characteristics of these various zones and regions.

There are considerable areas of Western Australia covered by drift sand which may be in the form of parallel red sand dunes or, in the southern part of the State, extensive sandy plains. The latter have been generally considered to be residual from the weathering of granite. These sand plains are often underlain by lateritic material and they probably represent the leached zone of the laterite profile. The youngest of the drift sand deposits are the coastal sand dunes.

Coastal sand deposits are of considerable economic importance. At various places along the south and west coasts there are beach sand deposits in which there is a natural concentration of heavy minerals such as zircon, monazite, xenotime, rutile and ilmenite. Such deposits are at present being exploited at Capel and Bunbury for their ilmenite content, which is valuable because of its low chrome content. The other heavy minerals such as zircon, monazite and xenotime are also being exported overseas.

Salt lake deposits. These, together with the coastal sand deposits, represent the youngest of the geological formations developed—indeed they are in course of formation at the present time. They are evaporite deposits resulting from the evaporation of lake waters in the areas of internal drainage. Soluble salts produced by rock weathering are leached out by rain and running water and transported by streams to these lakes. During the long dry summers most of these lakes dry up and the soluble salts are deposited, yielding accumulations of gypsum and common salt. In a few of these inland lakes hydrated potassium aluminium sulphate (alunite), which is a valuable source of potash for fertilisers, has been formed but its actual mode of formation has not yet been satisfactorily explained.

Valuable potash reserves occur at Lake MacLeod north of Carnarvon. This 800-square mile coastal lake contains brines saturating the mud of the lake floor which are rich in potash salts which are the last salts to crystallise on the evaporation of sea water. It is expected that these deposits, which will be Australia's only domestic source of potash, will come into production in 1971 and, within a few years, produce the equivalent of Australia's present consumption of 200,000 tons per annum.

Solar salt (sodium chloride) is at present being produced at several localities in the North-West, such as Port Hedland, Exmouth Gulf and Shark Bay, where a combination of low-lying flat topography and shallow marine embayments (such as Useless Loop in Shark Bay) with hot dry climate resulting in high evaporation are the ideal conditions for crystallisation of sea water salts. The production of such solar salt is expected to amount to 2 million tons by 1970.

Conclusion

From the foregoing summary of the geology of Western Australia we see that, although nowhere do we find the complete geological succession, somewhere in the State there are deposits representative of every Period. The geological history of Western Australia begins with the basaltic igneous activity of the Early Archaeozoic some 3,000 million years ago, followed by sedimentation, intense mountain building activity and associated granitisation and granite intrusions leading to the formation of the major deposits of economically important minerals. In post-Archaean times there is a record of sedimentation throughout all the main geological periods. Igneous activity ceased in the Lower Palaeozoic and only re-occurred during the late Mesozoic, yielding the basaltic lavas of the far South-West and the volcanic rocks of the West Kimberley. By mid-Tertiary times much of Western Australia had been reduced by denudation to a gently undulating peneplain land surface on which, under tropical climatic conditions, there was an extensive development of laterite which in places constitutes valuable bauxite and iron-ore deposits. Geological processes are continuing and at the present day rocks and soils are still in the process of formation.

Current Geological Investigations in Western Australia

While much is known about the geology and mineral resources of Western Australia, there is still much to be learned. The foregoing summary account of the geology

of Western Australia is based on work carried out in the past, which has increased in tempo during the last decade because of the discovery of important oil and mineral deposits.

At present, geological work in Western Australia is being carried out by the following bodies.

1. The Geological Survey Branch of the Department of Mines of Western Australia, which is engaged in regional geological mapping, special investigations of varied character concerned with groundwater resources, mineral deposits, and engineering geology problems, and problems arising daily, which require geological advice to the public. The major results of the Geological Survey's operations are published annually in the Annual Report of the Department of Mines of Western Australia, in Bulletins issued at irregular intervals and in four-mile scale geological maps with explanatory notes, which are also issued at irregular intervals.
2. The Geology Department of the University of Western Australia. Research projects are undertaken by members of staff and research students, varying from mapping and petrological-mineralogical projects concerned with the Precambrian rocks which make up the greater part of the State, through palaeontological work on rocks from the various sedimentary basins, to studies of present-day marine sedimentation. The results of such investigations are published in various scientific periodicals, both in Australia and overseas.
3. Oil exploration companies. Such companies have carried out geological and geophysical surveys of the various sedimentary basins and some offshore areas, and are presently engaged in deep-drilling programmes. Attention is now being given to drilling in the offshore continental shelf areas of the Canning and Perth Basins.
4. Mineral exploration companies. Following the discovery of important nickel deposits at Kambalda and Scotia near Kalgoorlie, many Australian and overseas exploration companies are engaged in base metal exploration, particularly in the Norseman to Laverton belt of Precambrian greenstones.

The continued efforts of these institutions and exploration companies are daily adding much to our knowledge of the geology of the western third of the Australian continent.

Seismicity of Western Australia

It had been generally considered that Western Australia was a stable block free of seismic activity in the form of earthquakes but this idea was shattered by the occurrence, on 14 October 1968, of a major earthquake centred near Meckering, eighty-four miles inland from Perth. This earthquake completely wrecked the town and most farm houses in the vicinity ; alarmed numerous residents of Perth ; caused minor damage to many buildings in the Perth Metropolitan Area; was felt within a radius of about 400 miles; and made people realise that Western Australia was not as stable as was previously thought. Other earthquakes, such as the Meeberrie earthquake of 29 April 1941 (the most severe earthquake yet recorded on the Australian continent), have tended to pass without much notice since they either occurred in less densely populated areas or were of low intensity. Records show (according to Everingham in a report of the Bureau of Mineral Resources, Geology and Geophysics, *Seismicity of Western Australia*) that there were forty-seven Western Australian earthquakes of local magnitude greater than 3·5 (Richter scale) recorded in the period August 1959 to June 1965, and 210 less intense earthquakes during the same period. The distribution to the end of 1967 of earthquakes of magnitude exceeding 4·1, plus the Meckering shocks of 1968, are shown on the accompanying map which indicates also the year of occurrence of the more severe earthquakes (those of magnitude greater than 6·0).

Western Australian earthquake data collected since 1904 suggest that the seismically active regions have been : (a) in the vicinity of Broome ; (b) in the Marble Bar-Port Hedland area ; (c) west of Carnarvon, near the continental margin ; (d) in an area 200 miles south-east of Carnarvon ; and (e) in an area extending south-east from Yandanooka through the wheat belt to Cape Riche. Activity to a lesser degree has occurred in other localities, such as to the west of Cape Leeuwin and about eighty miles south-south-east of Wyndham. Earth tremors have often been recorded at major mining towns, such as Cue and Kalgoorlie, but these are believed to be due to rock bursts caused by mining operations, rather than to normal seismic activity. Other than these ' man-made ' tremors, very few earthquakes have been recorded from the central part of the Precambrian Shield of crystalline rocks. In 1967 two earthquakes with epicentres about 350 miles north-east of Kalgoorlie occurred on 21 November 1967 (magnitude 4·0) and 14 December 1967 (magnitude 4·1). These are of interest because they were located near the epicentre of a small shock in 1965 which was the first known within the extensive aseismic stable Shield area in Western Australia. With little exception the seismically active areas are relatively close to the margins of the Shield and the adjoining sea floor.

Most of the recorded minor earthquakes have originated in the Yandanooka-Cape Riche belt of country about 300 miles long by thirty miles wide, which lies just within the western margin of the Shield. Indeed, all except five of the 210 recorded minor earthquakes of the period 1959 to 1965 originated in this narrow belt which is parallel to the regional geological structure of the older Precambrian rocks of the southern half of Western Australia. It was in this belt, at Meckering, that the severe earthquake of 14 October 1968 had its origin.

The Meckering earthquake, which resulted from the formation of a north-south striking, flat easterly-dipping fault, has yielded much valuable information about the stresses in the most active seismic area in Western Australia, namely the Yandanooka-Cape Riche Lineament. Faults are fractures in the Earth's crust on which relative movement of the adjoining blocks takes place, resulting in a shock which is transmitted through the rocks for considerable distances. It is this disturbance which constitutes the earthquake. The fault which caused the Meckering earthquake resulted in the formation of a fault scarp along which uplift of up to five feet occurred on the eastern side, and in addition, the western block moved north approximately three feet with respect to the eastern block. Instrumental readings indicate that the local magnitude was 6·9 (Richter scale) and the focus of the earthquake was near the eastern margin of Meckering townsite at a depth of less than six miles. The main earthquake at 10.59 a.m. (Western Standard Time) on 14 October 1968 was preceded by a few foreshocks and was followed by many aftershocks, the intensity and frequency of which has steadily diminished. The movement on the Meckering Fault was the result of compressional forces, indicating that the Australian Precambrian Shield is in a state of compression rather than tension, as formerly thought.

The major fault structure of Western Australia is the Darling Fault which forms the western margin of the Precambrian Shield and the eastern margin of the Perth Basin. It extends meridionally from the south coast for some 600 miles. It is considered that the total west block downward movement on this fault has been of the order of 30,000 to 40,000 feet. In spite of the fact that there is a major negative gravity anomaly over the Perth Basin causing this region to be isostatically unbalanced, no earthquakes have been recorded which originated on this fault—indeed there is no geological evidence of any movement on the Darling Fault for at least 1 million years. The October 1968 movement on the Meckering Fault indicates that the Precambrian Shield is in a state of compression and would support a hypothesis that the Darling Fault, instead of being a westerly-dipping structure with downthrow to the west, is more probably an easterly-dipping compression structure with the east (continental) block thrust up over the Perth Basin. This would explain the observed stability of the Perth Basin which should, according to the gravity measurements, be a very unstable area. Instead of rising, as it should because of the major negative gravity anomaly, it is being held down by the overthrust continental block.

As has been indicated, the Meckering earthquake has drawn attention to the possibility of earthquake occurrence in south Western Australia and for the necessity to consider this factor when designing large structures. Calculations have been made from records during the period 1960 to 1969 to give an approximate idea of the order of earthquake frequency in the south-west corner of the State. These have indicated that an earthquake of magnitude greater than 6·5 would occur once every fifty years, and one of magnitude greater than 5·5 every ten years, but these figures are thought to be pessimistic because records kept since 1840 suggest a lower average frequency and the data used for these calculations are swamped by the foreshocks and aftershocks of the Meckering earthquake.

FURTHER SOURCES OF INFORMATION ON THE GEOLOGY OF WESTERN AUSTRALIA

Physical features

JUTSON, J. T. 'The physiography (geomorphology) of Western Australia'. *Geol. Surv. West. Aust.* Bull. 95, 1934.

General geology

BROWN, D. A. and others. *The Geological Evolution of Australia and New Zealand.* Pergamon Press, Oxford, 1967.

CLARKE, E. de C. and others. *Elements of Geology for Australian Students.* University of Western Australia Press, Nedlands, 1967.

MCWHAE, J. R. H. and others. 'The stratigraphy of Western Australia'. *J. Geol. Soc. Aust.*, vol. 4, pt 2, 1958, pp. 1-161.

Geology of specific areas

GEOLOGICAL SURVEY OF WESTERN AUSTRALIA. *Annual Reports, Bulletins* and *4-mile geological maps with explanatory notes.*

COMMONWEALTH BUREAU OF MINERAL RESOURCES, GEOLOGY AND GEOPHYSICS. *Bulletins* and *Records.*

Minerals

E. S. SIMPSON. *Minerals of Western Australia* (3 volumes). Government Printer, Perth. Vol. 1, 1948, vol. 2, 1951, vol. 3, 1952.

Ore deposits

MCANDREW, J. *Geology of Australian Ore Deposits.* 2nd ed. Eighth Commonw. Min. Metall. Congress, Melbourne, 1965.

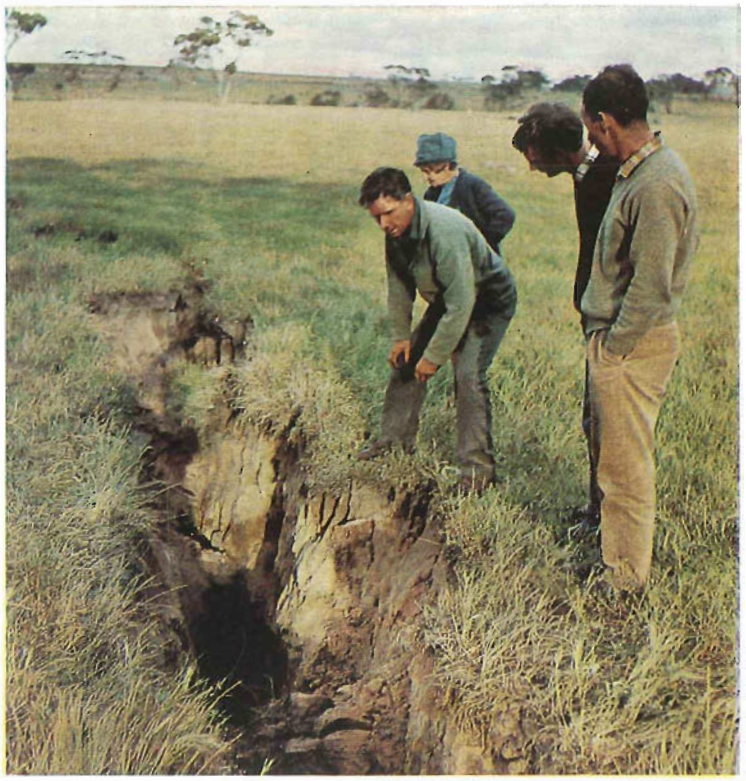
GEOLOGICAL SURVEY OF WESTERN AUSTRALIA. *Mineral Resources Bulletins.*

Seismicity

EVERINGHAM, I. B. 'Seismicity of Western Australia'. *Commonw. Bur. Min. Resour. Geol. Geophys. Report* 132, 1968.

MECKERING EARTHQUAKE

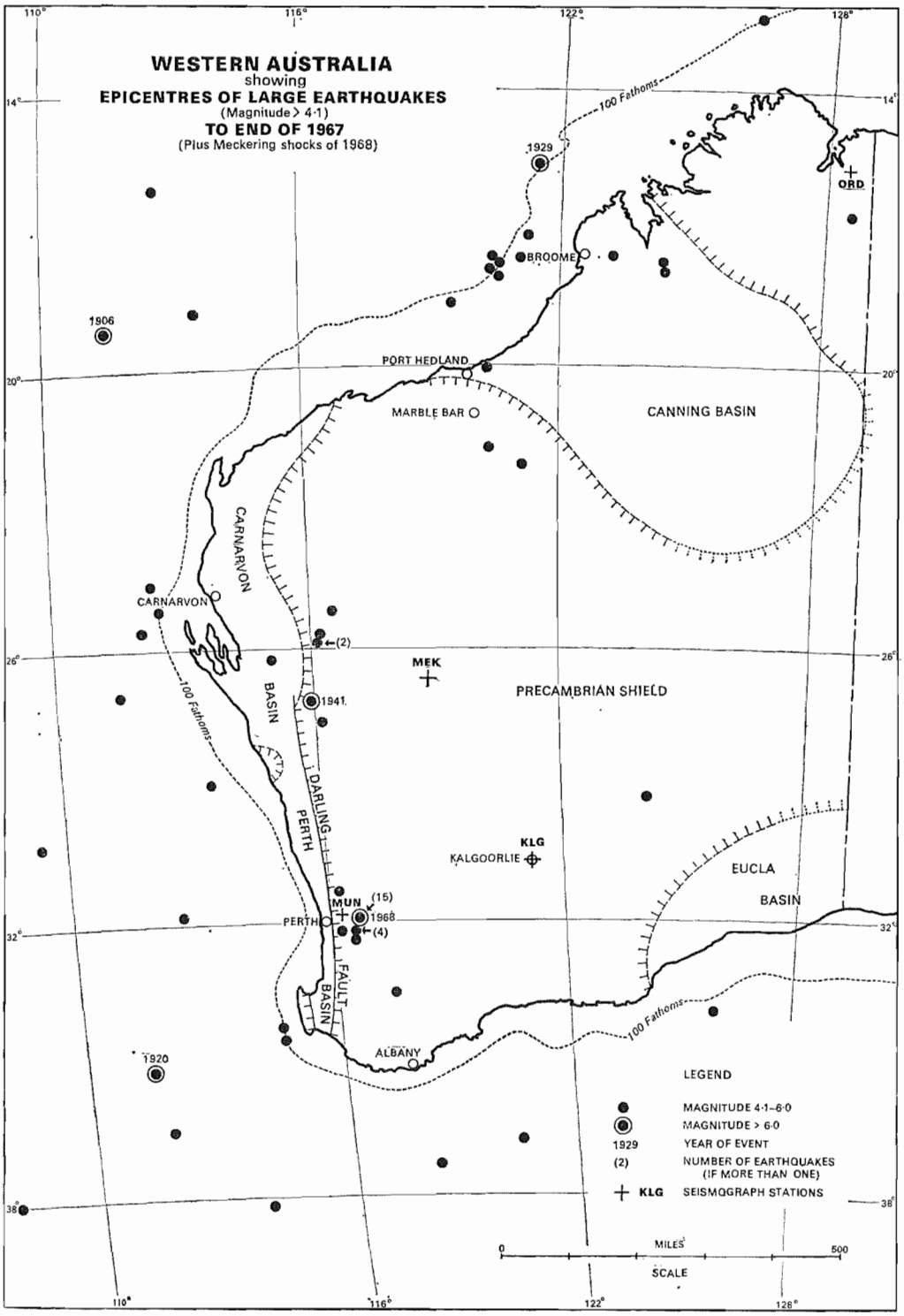
On 14 October 1968 a major earthquake occurred centred near Meckering, eighty-four miles inland from Perth. The earthquake, which completely wrecked the town and most farm houses in the vicinity, caused minor damage to many buildings in the Perth metropolitan area and was felt within a radius of 400 miles.



Above—Earthquake fissure near Meckering

Below—Fault scarp in Meckering area




WESTERN AUSTRALIA
showing
EPICENTRES OF LARGE EARTHQUAKES
(Magnitude > 4·1)
TO END OF 1967
(Plus Meckering shocks of 1968)
110°
116°
122°
128°
14°
20°
26°
32°
38°
100 Fathoms
1929
ORD
BROOME
1906
PORT HEDLAND
MARBLE BAR
CANNING BASIN
CARNARVON BASIN
CARNARVON
(2)
MEK
PRECAMBRIAN SHIELD
1941
DARLING FAULT
PERTH BASIN
KLG
KALGOORLIE
EUCLA BASIN
MUN
(15)
1968
(4)
PERTH
ALBANY
1920
LEGEND
MAGNITUDE 4·1–6·0
MAGNITUDE > 6·0
1929 YEAR OF EVENT
(2) NUMBER OF EARTHQUAKES (IF MORE THAN ONE)
KLG SEISMOGRAPH STATIONS
0 MILES 500
SCALE

Chapter II—continued

Part 2—Climate and Meteorology[1]

(Contributed by the Western Australian Regional Office of the Bureau of Meteorology)

Western Australia is the largest State in the Commonwealth, extending from latitude 13° 44′ S. to 35° 08′ S., and from longitude 113° 09′ E. to 129° E. It stretches a distance of about 1,500 miles in a north-south direction and about 1,000 miles west-east. A little more than one-third of the State lies within the tropics, while the remainder extends southward to the temperate zone.

Because of its large size and its latitudinal position, Western Australia has entirely different climates in its northern and southern parts, while in the central regions there is a gradual change from the tropical climate of the north to the typical Mediterranean climate of the south.

Most of the State is a plateau between 1,000 and 2,000 feet above mean sea-level and there are no outstanding mountain ranges. Where the edge of the plateau forms the Darling Range along the southern part of the west coast, it exerts a marked influence on the rainfall, causing a rapid increase from the coastal plain to the higher land. Elsewhere the effect of topography is less marked and its main influence is seen in the general decrease of rainfall with increasing distance from the coast.

PRESSURE SYSTEMS

Weather during the year is controlled largely by the movement of the anticyclonic belt (high pressure systems with anti-clockwise winds), which lies in an east-west direction across the continent for about six months of the year.

In winter this system moves northward, bringing clear skies with fine sunny days and easterly winds to the tropics. With this northward movement, westerly winds on the southern side of the anticyclones extend over the southern part of the State, bringing with them cool cloudy weather and rain. In mid-winter the northern fringe of the 'Roaring Forties' extends to Western Australia and there are frequent westerly gales in the south coastal belt.

These westerly winds are maintained by a series of depressions (low pressure systems with clockwise winds), which move eastward well south of the Western Australian coast, and others which originate in the Indian Ocean and move south-eastward past Cape Leeuwin. The extent to which westerlies affect the State depends largely on the intensity and the position of these depressions.

Towards the end of winter the anticyclonic belt moves southward, and the westerlies are confined more to the lower south-west and the south coastal districts. By summer the anticyclonic belt has moved so far south that its centre is off the south coast and easterly winds prevail over most of the State.

During this summer period the midday sun is at a high elevation in the tropics and the continual heating leads to the development of a monsoonal depression over this region. Wind circulation round this system causes easterlies on its southern or inland side, but in the coastal districts north-east from Onslow, and in parts of the Kimberley, westerlies prevail. Winds in both the north and the south of the State are then in the opposite direction to those prevailing during the winter.

As the sun moves northward again the anticyclonic belt follows it. The monsoonal depression over the tropics dissipates and westerlies again gradually extend northward to the southern part of the State.

---

[1] See *Appendix* for additional information contained in earlier issues of the Year Book.

During the northern 'Wet' season (from about December to March), occasional cyclones, known locally as 'willy willys', bring strong winds and rain to the tropics. They originate generally in the Timor Sea or off the north-west coast and often move first in a south-westerly direction parallel to the coast and later in a south-easterly direction.

They frequently move inland between Broome and Onslow but occasionally travel further westward before curving to the south-east and moving inland over the west coast. Others fade out at sea without ever crossing the coast. Those that move inland usually commence to dissipate soon after crossing the coast, but occasionally they move right across the State, passing into the Southern Ocean and moving off towards Tasmania.

These storms are often extremely violent and have on occasions almost completely wrecked towns on the north-west coast, while a cyclone which struck a pearling fleet off the Eighty Mile Beach in 1887 caused the loss of twenty-two vessels and 140 lives.

However, despite the damage which they cause, the storms are of great benefit to the pastoral regions on account of the heavy and widespread rain which generally accompanies them. The heaviest fall ever recorded in one day in Western Australia, 29·41 inches, was received at Whim Creek from a cyclone in 1898.

RAINFALL

The moist rain-bearing winds in this State are in general from a westerly direction. The easterlies, having come from the dry inland parts of Australia, usually bring fine weather and clear skies.

Because of this the highest rainfall occurs in the winter months in the south of the State, and in the summer months in the north. In between these areas there is a gradual change from one rainfall regime to the other.

From the map on page 39, which shows the wettest six-monthly period of the year, it can be seen that summer rains extend southward from the Kimberley to the Trans-Australian Railway, where there is a rapid change to the winter rainfall regime of the south coast. However, the difference between summer and winter totals decreases southward, and the southern part of this region is one of almost uniform rainfall.

Proceeding northward from the winter rainfall area of the south-west of the State, the wet period occurs earlier during the year. Across a belt Carnarvon-Menzies-Eucla, there is a more rapid change, and this belt divides the winter rainfall area from that which receives most of its rain in the first six months of the year. Further north, the change is more gradual but continuous and in the Kimberley most of the year's rainfall is received in the summer months which, in the southern parts of the State, are the driest of the year.

The mean annual rainfall for the State is shown on the map inside the back cover of the book. Rainfall in the agricultural area in 1969 is referred to in the *appendix*.

The following table shows the average rainfall and number of wet days, the highest and lowest monthly totals, and the highest daily fall for various centres.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS
(Stations are arranged from north to south in three groups : Coastal, Wheat Belt and Other Inland)

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL													
Wyndham (23 feet†)—													
Rainfall —Average (points)	749	649	470	109	30	20	17	2	8	45	185	434	2,718
Highest (points)	2,824	2,058	1,758	2,027	347	473	524	84	136	334	558	1,150	5,634
Lowest (points)	51	54	0	0	0	0	0	0	0	0	3	28	1,438
Highest one day (points)	1,212	590	1,250	1,732	247	445	338	42	136	225	335	434	1,732
Wet days—Average number	13	12	9	3	1	1	1	0	0	2	6	10	58
Broome (37 feet†)—													
Rainfall —Average (points)	410	559	299	128	137	66	35	8	7	5	34	115	1,803
Highest (points)	3,256	2,358	2,360	1,019	700	973	283	374	86	48	1,095	1,449	4,307
Lowest (points)	11	6	0	0	0	0	0	0	0	0	0	0	544
Highest one day (points)	1,400	1,191	1,062	714	470	563	216	147	82	28	553	680	1,400
Wet days—Average number	10	10	7	3	2	2	2	0	1	1	1	5	44

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL—*continued*													
Port Hedland **(25 feet†)—**													
Rainfall —Average (points)	193	365	176	74	130	58	46	17	4	6	9	86	1,164
Highest (points)	1,969	1,432	1,716	1,096	873	696	384	584	99	129	336	1,023	4,013
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	125
Highest one day (points)	600	955	1,113	469	638	560	185	364	85	127	304	900	1,113
Wet days—Average number	4	6	4	2	3	2	2	1	1	1	0	1	27
Roebourne **(40 feet†)—**													
Rainfall —Average (points)	247	240	283	124	116	102	56	21	6	3	7	38	1,243
Highest (points)	1,448	1,278	1,607	2,173	887	734	530	385	158	120	120	507	4,173
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	13
Highest one day (points)	911	666	1,032	1,144	660	325	530	172	90	115	66	383	1,144
Wet days—Average number	3	4	4	2	2	2	1	1	0	0	0	2	21
Onslow **(14 feet†)—**													
Rainfall —Average (points)	106	291	305	26	186	203	87	18	2	2	15	11	1,252
Highest (points)	1,028	2,122	1,633	1,100	1,020	908	872	421	49	61	237	241	4,265
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	57
Highest one day (points)	932	1,079	1,238	617	937	436	355	251	27	29	117	198	1,238
Wet days—Average number	2	4	3	2	4	4	4	2	1	0	1	1	28
Carnarvon **(15 feet†)—**													
Rainfall —Average (points)	21	95	65	31	168	198	168	70	18	17	8	3	862
Highest (points)	619	719	520	647	800	865	593	355	96	198	75	483	2,536
Lowest (points)	0	0	0	0	0	5	6	0	0	0	0	0	266
Highest one day (points)	358	441	470	197	410	475	322	193	63	104	28	469	475
Wet days—Average number	2	3	2	3	6	7	7	5	2	3	1	1	42
Geraldton **(13 feet†)—**													
Rainfall —Average (points)	33	51	38	107	278	423	406	268	105	60	21	28	1,818
Highest (points)	379	517	666	457	1,292	1,292	958	952	412	429	157	230	3,365
Lowest (points)	0	0	0	0	0	132	70	33	0	0	0	0	902
Highest one day (points)	310	324	369	270	307	430	201	365	169	280	140	202	430
Wet days—Average number	2	3	3	6	10	14	16	12	9	7	4	2	88
Perth—Observatory **(51 ft†)—**													
Rainfall —Average (points)	32	44	81	181	497	722	688	557	319	216	82	59	3,478
Highest (points)	217	655	571	585	1,213	1,875	1,673	1,253	784	787	278	317	5,267
Lowest (points)	0	0	0	0	77	216	242	46	34	15	0	0	2,000
Highest one day (points)	174	343	303	262	300	390	300	291	182	173	154	184	390
Wet days—Average number	3	3	4	8	14	17	18	18	14	12	6	4	121
Bunbury **(17 feet†)—**													
Rainfall —Average (points)	38	47	93	183	515	732	690	501	325	216	97	54	3,491
Highest (points)	340	405	330	690	1,047	1,620	1,640	1,187	793	769	331	316	5,374
Lowest (points)	0	0	0	0	38	287	194	82	0	26	0	0	1,904
Highest one day (points)	222	338	258	240	317	472	372	263	227	154	205	104	472
Wet days—Average number	3	3	4	7	14	18	18	17	14	11	6	4	119
Albany **(41 feet†)—**													
Rainfall —Average (points)	94	90	160	286	485	540	573	511	408	318	157	126	3,748
Highest (points)	854	635	653	921	1,140	1,152	1,060	1,124	796	736	671	459	5,484
Lowest (points)	4	0	10	19	174	159	205	198	80	56	19	6	2,507
Highest one day (points)	345	226	353	226	408	285	240	443	312	184	307	323	443
Wet days—Average number	7	7	10	13	18	20	20	20	18	16	11	9	169
Esperance **(14 feet†)—**													
Rainfall —Average (points)	68	79	107	181	322	401	417	375	280	217	114	92	2,653
Highest (points)	524	471	491	691	705	1,076	945	727	687	574	571	320	3,625
Lowest (points)	0	0	0	8	80	109	93	75	42	52	0	0	1,724
Highest one day (points)	274	154	175	496	205	416	218	232	455	179	200	279	496
Wet days—Average number	5	5	7	9	14	16	17	16	14	12	7	6	128
Eucla **(290 feet†)—**													
Rainfall —Average (points)	60	70	79	106	122	105	92	90	71	76	64	53	988
Highest (points)	375	680	501	807	349	608	245	323	333	291	448	455	1,705
Lowest (points)	0	0	0	0	0	7	11	7	2	2	0	0	442
Highest one day (points)	213	453	202	163	130	128	103	122	157	130	110	192	453
Wet days—Average number	3	4	5	8	9	10	10	9	8	7	6	4	83

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

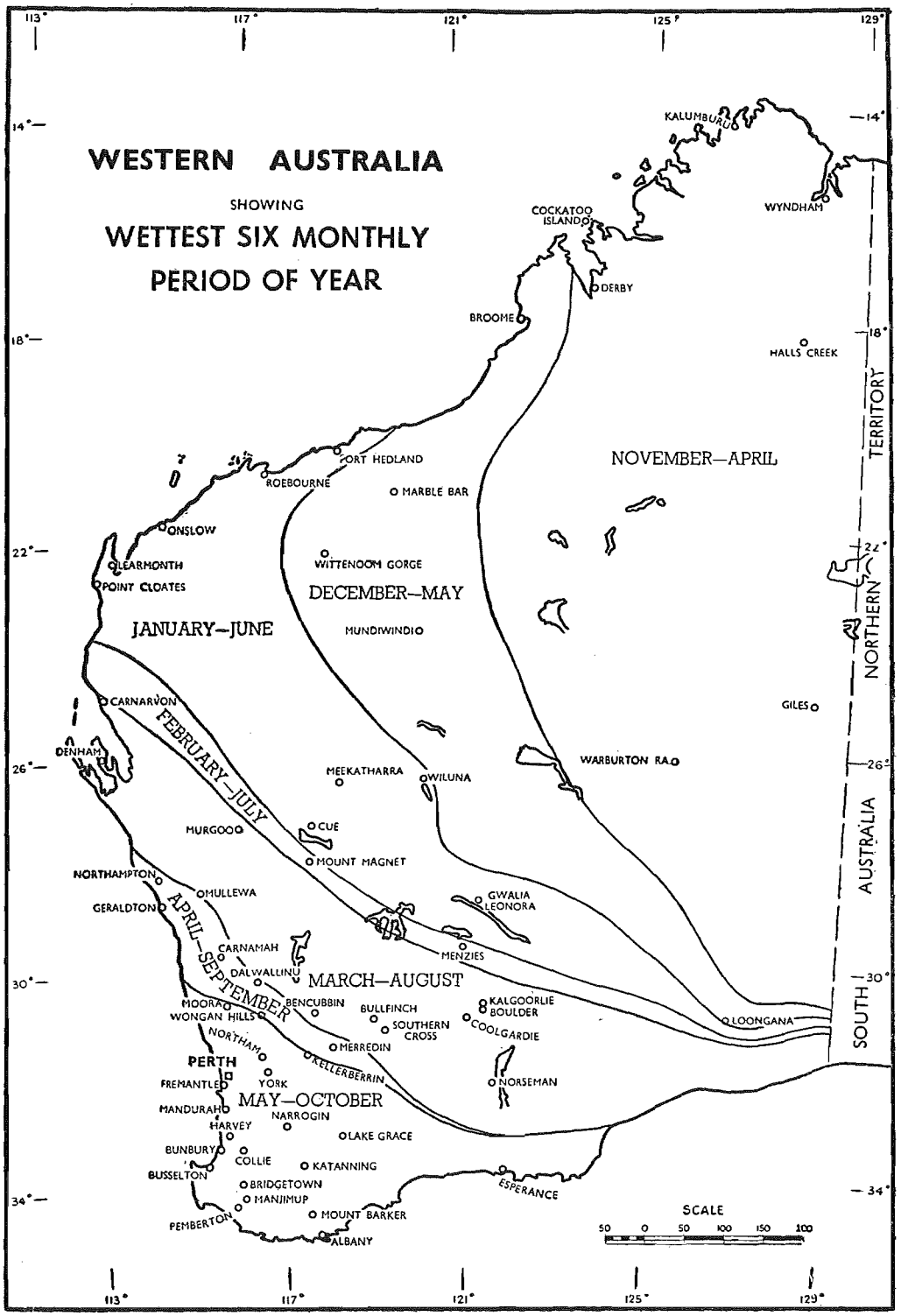
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
WHEAT BELT													
Carnamah (879 feet†)—													
Rainfall —Average (points)	42	54	84	85	200	312	283	219	117	68	42	35	1,541
Highest (points)	404	405	551	422	668	910	742	757	332	288	357	222	3,078
Lowest (points)	0	0	0	0	6	83	53	48	2	0	0	0	837
Highest one day (points)	380	226	299	350	290	241	170	260	129	157	280	197	380
Wet days—Average number	2	2	2	4	9	12	13	11	8	6	2	2	73
Wongan Hills (906 feet†)—													
Rainfall —Average (points)	43	49	86	88	209	302	282	207	107	72	40	39	1,524
Highest (points)	274	435	653	320	739	866	687	515	285	239	171	230	2,657
Lowest (points)	0	0	0	0	1	87	32	33	6	0	0	0	629
Highest one day (points)	273	314	320	243	250	274	161	135	146	141	117	225	320
Wet days—Average number	1	1	2	4	8	11	13	10	7	5	2	1	65
Kellerberrin (820 feet†)—													
Rainfall —Average (points)	38	50	89	80	170	224	220	167	104	76	42	55	1,315
Highest (points)	282	499	599	396	419	603	483	392	289	303	266	265	2,602
Lowest (points)	0	0	0	0	0	59	41	10	8	1	0	0	678
Highest one day (points)	198	426	404	228	159	184	150	158	93	168	129	224	426
Wet days—Average number	2	2	3	5	8	12	13	10	8	6	3	2	74
Southern Cross (1,170 feet†)—													
Rainfall —Average (points)	47	72	94	80	130	143	149	116	73	60	51	45	1,060
Highest (points)	389	538	665	504	469	371	420	346	418	312	293	282	2,264
Lowest (points)	0	0	0	0	0	20	42	2	0	0	0	0	464
Highest one day (points)	172	331	240	172	217	131	143	120	205	216	200	156	331
Wet days—Average number	3	2	4	4	7	8	9	9	6	5	3	2	62
Merredin (1,046 feet†)—													
Rainfall —Average (points)	39	50	87	89	161	203	216	156	101	77	51	54	1,284
Highest (points)	220	315	634	447	518	516	498	340	337	296	271	364	2,219
Lowest (points)	0	0	0	0	5	23	34	4	0	3	0	0	512
Highest one day (points)	157	260	325	235	194	166	181	132	176	105	144	191	325
Wet days—Average number	2	3	3	4	8	11	12	10	7	6	3	2	71
Northam (490 feet†)—													
Rainfall —Average (points)	33	46	76	89	226	327	340	249	142	96	42	36	1,702
Highest (points)	219	747	744	332	555	916	871	669	506	395	162	259	2,798
Lowest (points)	0	0	0	0	4	40	77	12	10	0	0	0	764
Highest one day (points)	148	455	497	294	257	226	220	150	180	185	126	195	497
Wet days—Average number	2	2	3	5	10	14	15	13	10	7	3	2	86
Wandering (1,100 feet†)—													
Rainfall —Average (points)	37	54	91	130	324	474	472	378	257	181	70	60	2,528
Highest (points)	222	961	481	476	766	1,450	1,274	1,062	757	508	254	416	4,135
Lowest (points)	0	0	0	0	42	99	133	54	33	11	0	0	1,168
Highest one day (points)	192	543	410	199	240	336	273	210	180	168	190	250	543
Wet days—Average number	3	3	5	8	13	17	19	17	13	11	6	4	119
Narrogin (1,114 feet†)—													
Rainfall —Average (points)	39	65	86	117	255	357	364	277	190	132	56	51	1,989
Highest (points)	270	934	502	495	599	1,182	957	729	478	483	290	373	2,917
Lowest (points)	0	0	0	0	38	99	98	62	26	6	0	0	1,056
Highest one day (points)	197	454	450	249	269	280	320	165	144	139	150	196	454
Wet days—Average number	2	2	4	6	11	13	15	14	11	8	4	3	93
Katanning (1,016 feet†)—													
Rainfall —Average (points)	42	61	94	122	245	306	308	243	182	144	71	67	1,885
Highest (points)	341	884	525	638	583	844	685	681	484	450	355	293	3,077
Lowest (points)	0	0	0	2	28	84	86	51	14	17	0	0	1,072
Highest one day (points)	253	495	271	417	233	276	182	142	145	198	165	216	495
Wet days—Average number	3	3	5	7	12	15	17	15	13	10	5	4	109
OTHER INLAND													
Halls Creek (1,225 feet†)—													
Rainfall —Average (points)	528	463	156	76	51	22	33	10	9	52	120	251	1,771
Highest (points)	2,274	1,467	1,451	646	659	344	316	221	207	408	789	905	4,202
Lowest (points)	20	11	0	0	0	0	0	0	0	0	0	12	844
Highest one day (points)	831	510	685	578	241	143	189	205	123	142	198	471	831
Wet days—Average number	12	12	6	3	2	1	1	0	1	2	6	9	55

† Height above mean sea-level.

RAINFALL AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
OTHER INLAND—*continued*													
Marble Bar (595 feet†)—													
Rainfall —Average (points)	285	290	214	83	89	93	52	21	4	18	35	135	1,319
Highest (points)	1,219	924	1,530	947	588	625	527	135	95	458	242	957	2,920
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	280
Highest one day (points)	574	470	1,200	536	274	412	247	125	95	332	238	592	1,200
Wet days—Average number	7	6	4	2	2	2	2	1	0	0	2	4	32
Mundiwindi (1,840 feet†)—													
Rainfall —Average (points)	177	181	193	86	84	76	33	31	14	32	42	107	1,056
Highest (points)	1,262	1,278	1,051	543	477	445	276	209	240	368	280	628	3,211
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	103
Highest one day (points)	274	278	688	223	219	159	168	152	135	210	227	450	688
Wet days—Average number	6	6	5	3	3	3	2	2	1	1	3	4	39
Warburton Range (1,515 feet†)—													
Rainfall —Average (points)	83	100	106	101	85	76	49	52	15	45	71	108	891
Highest (points)	697	587	710	435	357	388	211	284	965	188	328	375	2,719
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	137
Highest one day (points)	230	307	398	302	163	164	87	138	95	70	186	239	398
Wet days—Average number	4	3	3	3	4	3	3	2	1	2	3	5	36
Meekatharra (1,676 feet†)—													
Rainfall —Average (points)	135	118	80	34	78	160	64	38	16	11	41	21	796
Highest (points)	841	557	608	542	514	615	200	304	143	101	371	411	2,031
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	191
Highest one day (points)	335	330	405	431	303	238	134	153	132	84	322	270	431
Wet days—Average number	5	4	4	3	5	7	6	3	2	1	1	2	43
Laverton (1,506 feet†)—													
Rainfall —Average (points)	94	80	127	89	90	94	55	52	30	30	58	65	864
Highest (points)	559	567	479	805	487	497	192	334	265	198	598	530	1,782
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	258
Highest one day (points)	294	341	265	187	246	159	89	160	172	193	358	278	358
Wet days—Average number	3	3	3	4	4	5	4	3	2	2	2	2	37
Kalgoorlie (1,247 feet†)—													
Rainfall —Average (points)	73	143	64	82	88	108	99	76	68	36	61	45	943
Highest (points)	801	1,238	655	404	433	468	324	318	386	314	276	257	1,911
Lowest (points)	0	0	0	0	0	0	8	0	0	0	0	0	475
Highest one day (points)	379	700	279	282	315	225	147	137	174	246	254	199	700
Wet days—Average number	3	4	4	5	7	8	9	7	5	4	3	3	62
Rawlinna (607 feet†)—													
Rainfall —Average (points)	59	57	72	72	65	72	51	69	42	52	48	53	712
Highest (points)	828	483	336	448	319	513	207	609	334	250	317	461	1,956
Lowest (points)	0	0	0	0	0	0	0	0	0	0	0	0	310
Highest one day (points)	393	289	187	227	122	149	100	261	282	98	257	192	393
Wet days—Average number	2	2	3	3	4	5	4	4	3	3	3	2	38
Collie (624 feet†)—													
Rainfall —Average (points)	53	58	103	194	524	736	755	582	421	281	112	66	3,885
Highest (points)	304	702	414	719	1,036	1,865	1,731	1,628	977	837	352	317	5,769
Lowest (points)	0	0	0	15	58	230	203	123	57	24	2	1	2,377
Highest one day (points)	224	419	331	249	243	357	272	288	220	154	141	126	419
Wet days—Average number	4	3	6	10	16	19	21	19	17	13	8	5	141
Manjimup (917 feet†)—													
Rainfall —Average (points)	76	79	132	254	563	715	720	599	441	326	172	104	4,181
Highest (points)	320	462	542	763	1,059	1,307	1,258	1,272	1,010	652	478	306	6,934
Lowest (points)	0	0	2	34	104	339	168	193	94	74	10	0	2,558
Highest one day (points)	183	172	351	204	312	325	196	213	231	170	153	125	351
Wet days—Average number	6	5	8	11	18	20	22	21	16	15	11	8	161
Pemberton (565 feet†)—													
Rainfall —Average (points)	103	69	180	353	662	831	902	730	488	390	241	156	5,105
Highest (points)	579	347	519	821	1,331	1,469	1,563	1,572	860	764	614	379	6,897
Lowest (points)	9	5	11	42	141	497	519	412	208	97	43	19	3,601
Highest one day (points)	252	133	310	284	310	248	280	181	163	210	222	162	310
Wet days—Average number	7	5	9	12	18	20	21	20	17	15	12	9	165
Mount Barker (829 feet†)—													
Rainfall —Average (points)	88	94	144	224	341	394	420	367	325	281	159	117	2,954
Highest (points)	706	702	505	920	957	824	1,027	683	618	630	610	343	4,326
Lowest (points)	4	3	14	15	64	170	88	131	72	64	13	5	1,688
Highest one day (points)	412	284	192	548	270	206	285	259	175	214	251	173	548
Wet days—Average number	7	7	10	12	17	19	20	19	17	16	11	9	164

† Height above mean sea-level.


WESTERN AUSTRALIA
SHOWING
WETTEST SIX MONTHLY
PERIOD OF YEAR
113°
117°
121°
125°
129°
14°
18°
22°
26°
30°
34°
KALUMBURU
COCKATOO ISLAND
WYNDHAM
DERBY
BROOME
HALLS CREEK
NOVEMBER—APRIL
PORT HEDLAND
ROEBOURNE
MARBLE BAR
ONSLOW
LEARMONTH
POINT CLOATES
WITTENOOM GORGE
DECEMBER—MAY
JANUARY—JUNE
MUNDIWINDI
CARNARVON
FEBRUARY—JULY
DENHAM
MEEKATHARRA
WILUNA
WARBURTON RA.
GILES
HURGOO
CUE
MOUNT MAGNET
NORTHAMPTON
MULLEWA
GERALDTON
APRIL—SEPTEMBER
GWALIA
LEONORA
CARNAMAH
DALWALLINU
MENZIES
MARCH—AUGUST
MOORA
WONGAN HILLS
BENCUBBIN
BULLFINCH
SOUTHERN CROSS
KALGOORLIE
BOULDER
COOLGARDIE
LOONGANA
NORTHAM
MERREDIN
PERTH
FREMANTLE
YORK
KELLERBERRIN
NORSEMAN
MANDURAH
MAY—OCTOBER
NARROGIN
HARVEY
LAKE GRACE
BUNBURY
COLLIE
KATANNING
BUSSELTON
BRIDGETOWN
MANJIMUP
ESPERANCE
PEMBERTON
MOUNT BARKER
ALBANY
SCALE
50 0 50 100 150 200
TERRITORY
NORTHERN
AUSTRALIA
SOUTH

TEMPERATURE

The hottest month in Western Australia is November in the Kimberley, December a little further south and January near the Tropic of Capricorn. In the tropics temperatures generally rise from July, the coldest month, to November. In some places further rises occur, but in others the onset of the ' Wet ' prevents this further rise and there is a slight fall. As the rains cease at these latter places temperatures commence to rise again and there is another minor peak in March or April. After this there is a general fall until July.

South of the tropics the hottest month is January, except in coastal districts where February is hotter. The coldest month is again July.

The most consistently hot place in the State is Wyndham, where the mean maximum throughout the year is 93·1°F. and the mean minimum for the coldest month is 66·2°F. At Marble Bar the yearly mean maximum of 96·2°F. is higher, but mean minimum temperatures are consistently lower, falling to 52·4°F. in the coldest month. The mean maximum at this centre is the highest in Australia, exceeding 100°F. in the six months from October to March inclusive. There are often long spells of hot weather in this region and during one period, from 31 October 1923 to 7 April 1924, the maximum temperature at Marble Bar reached or exceeded 100°F. on 160 consecutive days.

Further south temperatures are lower, but even in the southern parts of the State there are occasional heat waves, and the highest temperature on record, 123·2°F., was recorded at Eucla on the south coast.

Near the coast the sea breeze generally brings relief from high temperatures. It blows nearly every afternoon in the hot months, and is known in Perth as the ' Fremantle Doctor '. Away from the influence of the sea, extremes are greater, day temperatures being higher and night temperatures lower than in the coastal districts. During the winter, temperatures have fallen below 30°F. in most of the inland part of the State south from the tropics. The lowest on record is 20·2°F. which occurred at Booylgoo Springs near Sandstone, and as far north as Mundiwindi, almost in the tropics, 22·4°F. has been recorded.

Frosts are at times widespread over the southern part of the State and occasionally extend into the tropics, but they are not particularly troublesome as they normally occur during that period of the year when crops are least susceptible to frost damage. They occur mainly in the months May to September inclusive and are most frequent in July and August.

The table below shows, for each month of the year, the mean maximum, mean minimum, and extreme temperatures and the average number of days with registrations of 90°F. and over and of 100°F. and over. The average number of days with temperatures of 36°F. or below, which provides an indication of frost frequency, is also shown.

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS

(Stations are arranged from north to south in three groups: Coastal, Wheat Belt and Other Inland)

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL													
Wyndham—													
Temperature:													
Mean max., °F.	95·9	95·5	95·3	94·7	90·1	85·8	85·0	88·5	93·5	96·9	98·5	97·6	93·1
Mean min., °F.	80·2	79·7	79·5	77·2	72·4	68·0	66·2	69·5	74·8	79·7	81·4	81·2	75·8
Highest max., °F.	113·5	111·0	108·0	106·0	103·0	97·5	96·0	102·0	106·0	111·0	113·6	112·0	113·6
Lowest min., °F.	67·0	62·0	65·0	63·0	52·0	50·0	48·0	47·0	60·1	65·0	58·0	65·0	47·0
Number of days 90° and over	29·2	25·6	29·1	26·3	26·2	11·7	13·4	24·1	29·5	30·6	29·3	29·0	304·0
Number of days 100° and over	17·3	12·3	15·6	7·2	0·7	0·0	0·0	0·4	4·3	16·8	21·9	18·3	114·8
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Broome—													
Temperature:													
Mean max., °F.	91·3	91·8	93·1	93·3	88·0	82·5	81·8	85·0	88·8	90·5	92·7	93·2	89·3
Mean min., °F.	79·2	79·1	77·7	71·6	64·8	59·5	57·0	60·0	65·1	72·1	76·7	79·4	70·2
Highest max., °F.	111·5	108·8	107·0	107·0	101·0	97·2	95·0	100·5	103·5	109·1	111·8	112·7	112·7
Lowest min., °F.	64·0	59·0	55·0	54·0	45·1	43·4	37·9	40·6	48·0	52·8	58·5	63·0	37·9
Number of days 90° and over	27·5	25·6	28·5	26·2	14·5	4·2	4·4	9·8	15·8	19·4	25·1	28·5	229·5
Number of days 100° and over	3·0	1·5	5·3	2·6	0·0	0·0	0·0	0·1	0·8	5·9	3·3	3·5	26·0
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL—*continued*													
Port Hedland—													
Temperature:													
Mean max., °F.	94·3	94·6	95·3	93·3	86·1	80·2	79·3	82·3	86·9	89·7	93·2	94·2	89·1
Mean min., °F.	79·4	79·1	77·6	71·2	63·7	57·9	55·6	58·4	62·5	68·1	73·5	77·5	68·7
Highest max., °F.	117·0	115·7	112·1	113·0	101·0	94·0	93·7	98·3	105·5	110·7	114·0	118·2	118·2
Lowest min., °F.	60·0	61·4	62·2	51·2	44·6	40·4	37·8	38·7	45·0	51·9	57·8	61·8	37·8
Number of days 90° and over	28·1	25·9	29·6	24·3	8·2	0·3	0·4	4·3	15·3	20·5	23·3	27·7	207·9
Number of days 100° and over	8·8	6·1	13·7	4·4	0·0	0·0	0·0	0·0	0·3	4·3	7·4	10·7	55·7
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Roebourne—													
Temperature:													
Mean max., °F.	100·8	100·9	98·5	93·9	86·2	79·4	79·0	82·9	89·6	94·4	100·5	101·7	92·3
Mean min., °F.	79·2	79·3	77·4	70·6	64·0	58·2	55·4	57·5	61·5	66·6	73·2	76·7	68·3
Highest max., °F.	118·0	116·0	113·4	109·8	100·0	93·8	91·0	97·0	106·8	113·0	114·5	116·0	118·0
Lowest min., °F.	66·5	55·0	63·0	57·8	46·7	40·0	41·0	44·0	48·1	55·0	49·0	53·0	40·0
Number of days 90° and over	29·8	26·3	27·9	24·1	7·2	0·2	0·2	3·3	15·2	23·3	28·1	30·5	216·1
Number of days 100° and over	17·7	15·0	15·9	4·7	0·0	0·0	0·0	0·0	0·8	5·9	16·2	19·4	95·6
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Onslow—													
Temperature:													
Mean max., °F.	96·4	96·4	95·4	91·9	84·3	78·0	77·3	80·0	85·1	88·9	93·5	95·4	88·5
Mean min., °F.	74·2	74·7	73·5	67·1	60·3	54·5	51·5	53·5	56·8	61·0	66·3	70·5	63·7
Highest max., °F.	117·8	119·0	115·6	110·9	101·0	90·0	90·2	95·6	101·0	112·2	115·0	117·5	119·0
Lowest min., °F.	60·5	61·9	58·4	50·0	42·0	37·3	37·5	40·0	41·9	45·4	50·0	54·5	37·3
Number of days 90° and over	25·8	24·1	27·8	16·7	2·8	0·1	0·0	0·8	5·2	13·3	19·1	25·2	160·9
Number of days 100° and over	9·1	7·0	8·8	1·5	0·0	0·0	0·0	0·0	0·2	2·0	5·7	9·8	44·1
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Carnarvon—													
Temperature:													
Mean max., °F.	87·2	88·1	86·9	84·4	78·3	73·7	71·7	73·1	75·4	77·4	81·4	84·2	80·2
Mean min., °F.	72·1	72·4	71·6	65·8	58·8	54·0	51·6	53·4	57·2	61·1	65·8	69·2	62·7
Highest max., °F.	117·8	115·2	112·8	105·9	100·4	90·2	86·8	90·2	101·2	108·3	109·1	113·0	117·8
Lowest min., °F.	58·0	61·2	56·1	47·0	42·8	37·0	37·0	38·3	42·0	45·5	50·4	54·6	37·0
Number of days 90° and over	8·0	9·8	11·3	7·0	0·4	0·0	0·0	0·1	0·9	2·1	2·5	3·6	45·7
Number of days 100° and over	3·4	3·8	3·7	1·3	0·0	0·0	0·0	0·0	0·0	0·4	0·5	0·9	14·0
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0
Geraldton—													
Temperature:													
Mean max., °F.	84·5	85·2	83·6	80·5	74·2	69·7	67·7	68·8	71·4	73·6	78·5	82·0	76·6
Mean min., °F.	66·3	66·5	65·0	60·9	56·9	53·8	51·7	52·1	53·0	55·4	60·0	63·4	58·7
Highest max., °F.	117·9	115·5	111·7	103·0	94·7	83·8	81·9	88·9	96·5	104·6	108·8	116·0	117·9
Lowest min., °F.	48·0	51·0	47·0	41·8	36·0	33·5	33·4	35·1	35·3	37·9	44·0	45·8	33·4
Number of days 90° and over	8·2	9·8	9·8	3·9	1·1	0·0	0·0	0·0	0·1	1·3	4·9	5·0	44·1
Number of days 100° and over	3·4	3·5	2·1	0·3	0·0	0·0	0·0	0·0	0·0	0·1	0·9	1·8	12·1
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·2	0·1	0·0	0·1	0·0	0·0	0·0	0·4
Perth—													
Temperature:													
Mean max., °F.	84·6	85·3	81·8	76·3	69·0	64·4	62·9	64·0	66·7	69·6	75·9	81·2	73·5
Mean min., °F.	63·2	63·6	61·4	57·3	52·6	49·7	48·0	48·3	50·1	52·4	56·7	60·5	55·3
Highest max., °F.	110·7	112·2	106·4	99·7	90·4	81·7	76·4	82·0	90·9	99·1	104·6	108·1	112·2
Lowest min., °F.	48·6	47·7	45·8	39·3	34·3	34·9	34·2	35·4	36·7	39·6	42·0	47·5	34·2
Number of days 90° and over	8·8	8·2	5·5	1·2	0·0	0·0	0·0	0·0	0·0	0·3	2·2	5·6	31·8
Number of days 100° and over	1·6	1·8	0·7	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·1	0·8	5·0
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·1	0·1	0·0	0·0	0·0	0·0	0·0	0·2
Bunbury—													
Temperature:													
Mean max., °F.	82·1	81·9	78·9	74·4	68·1	64·1	62·5	63·1	65·5	68·1	74·4	78·9	71·8
Mean min., °F.	59·1	59·1	57·1	53·6	50·8	48·6	47·1	47·4	48·8	50·4	54·0	56·8	52·7
Highest max., °F.	106·2	104·2	101·0	93·0	83·7	77·2	72·2	75·5	83·8	92·5	99·8	101·5	106·2
Lowest min., °F.	42·0	41·3	39·3	36·7	32·1	33·0	28·0	33·0	30·0	33·0	39·2	38·4	28·0
Number of days 90° and over	4·2	3·2	1·6	0·1	0·0	0·0	0·0	0·0	0·0	0·0	0·3	1·1	10·5
Number of days 100° and over	0·1	0·2	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·3
Number of days 36° and under	0·0	0·0	0·0	0·0	0·1	0·4	0·3	0·2	0·3	0·3	0·0	0·0	1·6
Albany—													
Temperature:													
Mean max., °F.	73·8	74·2	72·3	70·3	65·9	62·2	60·9	61·7	63·6	65·7	69·2	72·0	67·6
Mean min., °F.	58·5	58·8	57·5	54·5	50·7	47·8	46·3	46·6	48·3	50·0	53·6	56·5	52·4
Highest max., °F.	107·0	112·6	105·4	99·9	95·3	76·2	73·5	81·0	87·0	97·2	106·0	106·0	112·6
Lowest min., °F.	42·3	41·0	38·7	39·5	35·1	35·0	32·2	34·3	34·0	36·2	40·6	41·2	32·2
Number of days 90° and over	0·8	0·3	0·9	0·6	0·0	0·0	0·0	0·0	0·0	0·1	0·4	0·9	4·0
Number of days 100° and over	0·3	0·0	0·1	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·2	0·6
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
COASTAL—*continued*													
Esperance—													
Temperature:													
Mean max., °F.	76·6	77·5	75·4	72·2	67·4	63·6	62·1	63·5	66·4	68·4	71·9	74·5	70·0
Mean min., °F.	59·9	60·3	58·9	54·4	50·3	46·8	45·4	45·7	47·9	50·3	54·4	57·5	52·6
Highest max., °F.	117·0	111·4	110·5	102·0	91·5	81·0	78·8	88·7	96·0	103·8	108·0	112·0	117·0
Lowest min., °F.	40·8	40·8	39·0	38·0	35·0	32·0	31·0	32·0	34·3	33·9	38·0	40·0	31·0
Number of days 90° and over	3·1	3·1	2·6	0·8	0·1	0·0	0·0	0·0	0·1	0·6	1·6	2·5	14·5
Number of days 100° and over	1·2	1·0	0·5	0·0	0·0	0·0	0·0	0·0	0·0	0·1	0·2	0·8	3·8
Number of days 36° and under	0·0	0·0	0·0	0·0	0·1	0·8	0·9	0·5	0·2	0·0	0·0	0·0	2·5
Eucla—													
Temperature:													
Mean max., °F.	78·2	78·5	77·5	74·9	70·5	65·6	64·5	66·9	70·1	72·9	74·7	77·0	72·6
Mean min., °F.	62·4	63·0	60·9	56·3	50·8	46·4	44·3	45·1	47·9	51·9	56·5	59·8	53·8
Highest max., °F.	123·2	120·0	112·0	106·6	96·4	92·0	89·8	94·9	104·0	109·6	116·0	120·8	123·2
Lowest min., °F.	45·0	43·8	40·2	39·9	33·0	28·0	28·1	29·1	31·0	31·5	37·0	38·0	28·0
Number of days 90° and over	3·0	3·0	4·0	2·0	1·0	0·0	0·0	0·0	1·0	4·0	4·0	4·0	26·0
Number of days 100° and over	2·0	2·0	2·0	0·0	0·0	0·0	0·0	0·0	0·0	1·0	2·0	3·0	12·0
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	1·0	3·0	2·0	0·0	0·0	0·0	0·0	6·0
WHEAT BELT													
Carnamah—													
Temperature:													
Mean max., °F.	95·7	95·5	89·4	82·3	72·2	67·2	64·2	67·0	71·6	77·9	85·3	90·8	79·9
Mean min., °F.	63·5	63·7	60·5	56·0	49·7	47·3	44·7	44·6	45·5	49·4	54·6	59·2	53·2
Highest max., °F.	114·1	114·0	111·0	102·0	91·0	82·0	82·0	85·0	95·1	104·0	109·5	111·0	114·1
Lowest min., °F.	41·1	44·5	44·0	35·0	34·0	32·0	33·0	33·3	33·9	34·0	36·2	44·0	32·0
Number of days 90° and over	23·8	22·2	18·7	6·5	0·0	0·0	0·0	0·0	0·6	3·5	8·8	16·8	100·9
Number of days 100° and over	12·2	9·4	4·5	0·0	0·0	0·0	0·0	0·0	0·0	0·1	1·3	5·9	33·4
Number of days 36° and under	0·0	0·0	0·0	0·0	0·1	0·5	0·8	0·8	0·3	0·0	0·0	0·0	2·5
Wongan Hills—													
Temperature:													
Mean max., °F.	92·7	90·4	87·9	78·4	67·2	62·4	60·4	61·9	68·6	73·5	80·2	85·6	75·8
Mean min., °F.	63·1	62·9	61·1	55·5	48·5	45·2	41·8	41·7	45·6	47·9	52·0	57·1	51·9
Highest max., °F.	112·0	109·6	108·5	98·6	89·2	74·2	76·3	79·6	90·3	99·5	104·2	111·6	112·0
Lowest min., °F.	47·9	49·1	42·1	37·1	34·2	33·0	32·2	31·5	32·3	35·0	39·7	41·5	31·5
Number of days 90° and over	18·3	15·5	14·5	2·7	0·0	0·0	0·0	0·0	0·0	1·0	5·2	10·7	67·9
Number of days 100° and over	6·7	4·0	1·3	0·0	0·0	0·0	0·0	0·0	0·0	0·2	1·7	13·9	
Number of days 36° and under	0·0	0·0	0·0	0·0	0·2	0·8	2·5	2·7	1·1	0·0	0·0	0·0	7·3
Kellerberrin—													
Temperature:													
Mean max., °F.	93·0	92·3	86·4	79·1	69·3	63·4	61·3	64·0	70·2	76·1	85·0	90·5	77·5
Mean min., °F.	61·6	61·4	58·8	52·2	46·5	43·6	41·5	41·9	43·8	47·8	54·5	58·8	51·0
Highest max., °F.	115·0	116·0	112·0	102·6	96·0	80·4	76·0	82·6	97·7	103·0	109·5	113·0	116·0
Lowest min., °F.	45·0	43·0	40·7	34·0	28·0	26·5	26·0	27·6	30·0	32·5	35·0	42·0	26·0
Number of days 90° and over	19·9	16·7	11·3	2·7	0·2	0·0	0·0	0·0	0·2	1·8	8·5	15·0	76·3
Number of days 100° and over	6·9	5·5	1·8	0·1	0·0	0·0	0·0	0·0	0·0	0·1	1·4	4·6	20·4
Number of days 36° and under	0·0	0·0	0·0	0·1	2·4	4·6	7·4	7·0	3·4	0·6	0·0	0·0	25·5
Southern Cross—													
Temperature:													
Mean max., °F.	94·3	93·0	87·0	78·9	69·5	63·0	61·7	64·7	72·0	77·7	86·5	92·3	78·4
Mean min., °F.	62·2	62·2	58·4	51·7	45·1	41·5	39·1	40·3	43·1	47·9	55·0	59·9	50·5
Highest max., °F.	115·0	117·0	112·0	103·2	92·0	81·5	80·0	85·9	94·6	102·8	110·2	114·6	117·0
Lowest min., °F.	42·0	42·0	38·2	30·0	26·0	24·3	23·0	25·0	26·0	30·6	35·6	40·8	23·0
Number of days 90° and over	21·5	17·3	12·7	3·2	0·0	0·0	0·0	0·0	0·4	2·7	10·6	18·5	86·9
Number of days 100° and over	9·1	7·2	2·5	0·1	0·0	0·0	0·0	0·0	0·0	0·1	2·0	6·4	27·4
Number of days 36° and under	0·0	0·0	0·0	0·6	2·4	7·1	8·6	9·6	3·5	0·4	0·0	0·0	32·2
Merredin—													
Temperature:													
Mean max., °F.	92·8	91·5	85·8	77·2	68·0	62·1	60·1	62·7	69·3	75·3	83·3	89·1	76·4
Mean min., °F.	62·2	62·1	59·3	52·9	46·3	43·2	40·4	40·3	42·4	46·9	53·8	58·8	50·7
Highest max., °F.	113·0	112·0	109·6	101·8	93·5	81·4	77·4	82·2	92·6	102·5	107·0	112·1	113·0
Lowest min., °F.	45·5	43·0	41·2	29·8	25·0	27·0	25·3	25·9	27·5	29·8	33·0	41·0	25·0
Number of days 90° and over	19·8	16·1	10·6	1·7	0·0	0·0	0·0	0·0	0·1	1·5	7·1	14·0	70·9
Number of days 100° and over	6·2	5·0	1·4	0·1	0·0	0·0	0·0	0·0	0·0	0·1	0·7	3·5	17·0
Number of days 36 and under	0·0	0·0	0·0	0·4	1·4	4·2	6·5	8·7	4·2	0·8	0·0	0·0	26·2
Northam—													
Temperature:													
Mean max., °F.	92·8	92·3	86·5	79·2	69·5	63·5	61·8	63·8	69·1	74·2	83·6	89·6	77·2
Mean min., °F.	62·7	62·7	59·8	53·2	47·3	43·7	41·7	42·4	44·9	48·3	55·1	60·1	51·8
Highest max., °F.	115·2	116·0	111·0	103·0	93·0	81·0	76·0	82·4	94·2	103·0	111·3	114·0	116·0
Lowest min., °F.	45·1	45·5	41·9	33·0	27·2	25·0	28·3	30·0	30·4	32·8	37·4	42·0	25·0
Number of days 90° and over	20·2	17·3	11·7	3·2	0·1	0·0	0·0	0·0	0·1	1·3	7·1	15·0	76·0
Number of days 100° and over	7·3	5·9	2·4	0·0	0·0	0·0	0·0	0·0	0·0	0·1	1·1	4·5	21·3
Number of days 36° and under	0·0	0·0	0·0	0·2	1·1	4·7	5·5	6·2	2·0	0·2	0·0	0·0	19·9

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
WHEAT BELT—*continued*													
Wandering—													
Temperature:													
Mean max., °F.	88·3	87·6	82·0	74·9	65·9	60·5	59·2	60·5	64·9	69·6	78·9	84·9	73·1
Mean min., °F.	56·5	55·9	53·6	47·5	43·6	40·5	39·0	39·3	41·4	43·8	48·9	53·5	47·0
Highest max., °F.	114·0	110·8	107·5	97·0	87·0	77·0	71·8	79·0	86·0	98·5	103·5	109·0	114·0
Lowest min., °F.	38·0	37·0	30·9	28·0	22·0	21·8	24·0	25·0	27·0	28·0	29·0	35·0	21·8
Number of days 90° and over	15·2	12·0	9·3	1·3	0·0	0·0	0·0	0·0	0·0	0·4	2·3	7·4	47·9
Number of days 100° and over	3·7	2·4	0·5	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·1	1·3	8·0
Number of days 36° and under	0·0	0·0	0·0	1·3	7·9	9·8	9·9	9·5	9·4	5·3	1·0	0·3	54·4
Narrogin—													
Temperature:													
Mean max., °F.	87·5	86·2	81·0	73·3	64·6	59·2	57·8	59·3	64·1	69·2	78·1	83·9	72·0
Mean min., °F.	56·5	56·5	54·4	50·1	45·6	43·1	41·2	41·1	42·4	44·5	49·1	53·1	48·1
Highest max., °F.	110·7	109·1	105·6	96·0	89·5	79·1	70·2	76·8	86·7	100·0	103·5	109·7	110·7
Lowest min., °F.	39·8	39·0	37·9	32·0	29·5	28·0	27·2	27·2	26·5	29·0	32·0	35·2	26·5
Number of days 90° and over	11·5	9·0	4·3	0·6	0·0	0·0	0·0	0·0	0·0	0·2	2·6	7·2	35·4
Number of days 100° and over	2·1	1·7	0·4	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·2	0·9	5·3
Number of days 36° and under	0·0	0·0	0·0	0·4	2·4	3·8	6·6	6·5	6·9	3·4	0·9	0·1	31·0
Katanning—													
Temperature:													
Mean max., °F.	86·0	85·1	79·3	73·2	64·7	59·7	57·9	59·5	64·1	68·8	77·6	82·8	71·6
Mean min., °F.	56·3	56·5	54·7	50·4	46·5	43·6	41·9	42·0	43·7	45·7	50·2	53·8	48·8
Highest max., °F.	110·9	112·3	107·0	96·2	88·4	75·3	71·0	88·0	87·0	100·0	106·0	110·0	112·3
Lowest min., °F.	41·0	37·9	35·0	33·0	30·0	28·3	25·0	28·1	29·8	31·0	35·0	37·6	25·0
Number of days 90° and over	12·3	7·5	5·3	1·1	0·0	0·0	0·0	0·0	0·0	0·3	2·0	5·9	34·4
Number of days 100° and over	2·6	1·4	0·3	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·9	5·2
Number of days 36° and under	0·0	0·0	0·0	0·2	1·8	3·6	4·4	4·5	2·8	1·1	0·2	0·0	18·6
OTHER INLAND													
Halls Creek—													
Temperature:													
Mean max., °F.	97·6	97·0	95·6	92·3	85·7	80·6	80·1	85·9	92·7	98·3	100·5	99·5	92·2
Mean min., °F.	75·4	74·2	71·2	63·0	56·0	50·5	47·6	52·1	59·0	69·5	74·2	75·5	64·0
Highest max., °F.	111·8	110·8	107·6	103·8	99·0	95·0	93·2	100·0	104·3	110·8	110·8	111·6	111·8
Lowest min., °F.	60·0	54·0	51·8	45·0	36·4	32·4	30·0	32·8	37·4	48·0	53·0	53·8	30·0
Number of days 90° and over	28·5	24·8	29·1	22·7	9·5	0·8	1·3	7·3	23·2	29·2	29·7	29·0	235·1
Number of days 100° and over	17·8	8·5	9·6	1·6	0·0	0·0	0·0	0·0	0·7	12·7	17·6	19·2	87·7
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·3	0·8	0·0	0·0	0·0	0·0	0·0	1·1
Marble Bar—													
Temperature:													
Mean max., °F.	106·2	105·5	102·9	97·0	88·0	80·9	80·6	85·8	93·8	100·1	105·9	107·5	96·2
Mean min., °F.	78·9	78·6	76·8	69·5	61·3	54·7	52·4	55·7	61·7	68·7	75·2	78·1	67·6
Highest max., °F.	120·5	119·0	116·0	113·0	103·0	93·0	95·0	99·0	108·7	114·0	117·0	119·0	120·5
Lowest min., °F.	66·0	57·0	59·6	52·0	42·0	34·0	36·0	39·0	42·0	50·0	58·0	63·0	34·0
Number of days 90° and over	30·3	26·5	28·8	26·0	10·1	0·5	0·8	7·3	22·6	26·3	30·0	30·5	239·7
Number of days 100° and over	27·9	22·1	18·9	8·8	0·2	0·0	0·0	0·0	2·0	12·6	24·2	28·7	145·4
Number of days 36° and under	0·0	0·0	0·0	0·0	0·0	0·0	0·2	0·8	0·0	0·0	0·0	0·0	1·0
Mundiwindi—													
Temperature:													
Mean max., °F.	100·5	98·7	94·0	86·7	77·7	70·4	70·0	74·6	83·2	89·4	96·2	99·8	86·8
Mean min., °F.	73·6	72·7	69·0	60·3	51·2	43·4	41·4	45·0	51·3	58·6	66·7	71·2	58·7
Highest max., °F.	112·2	112·0	108·2	105·0	97·6	85·7	87·0	99·0	99·0	106·5	110·0	112·0	112·2
Lowest min., °F.	57·0	55·0	49·0	39·0	28·9	24·0	22·4	25·5	29·0	37·9	46·0	53·0	22·4
Number of days 90° and over	29·3	25·3	25·4	11·6	0·6	0·0	0·0	0·4	5·6	15·9	25·3	29·1	168·5
Number of days 100° and over	20·3	15·7	10·2	0·2	0·0	0·0	0·0	0·0	0·0	1·3	9·8	19·9	77·4
Number of days 36° and under	0·0	0·0	0·0	0·0	0·6	5·6	7·3	3·7	0·2	0·0	0·0	0·0	17·4
Warburton Range—													
Temperature:													
Mean max., °F.	98·1	97·0	92·5	83·5	73·6	69·0	68·1	72·2	80·5	86·0	91·3	97·0	84·1
Mean min., °F.	71·8	70·5	67·9	58·6	49·5	43·6	42·0	44·9	51·0	57·1	63·7	69·5	57·5
Highest max., °F.	115·8	116·4	110·1	104·7	92·0	90·1	89·0	93·8	103·8	108·9	112·0	115·3	116·4
Lowest min., °F.	50·0	48·4	49·2	35·2	30·0	27·4	24·7	28·0	34·0	39·4	45·0	49·0	24·7
Number of days 90° and over	26·0	23·0	22·0	7·0	0·0	0·0	0·0	0·0	6·0	13·0	19·0	26·0	142·0
Number of days 100° and over	16·0	13·0	9·0	1·0	0·0	0·0	0·0	0·0	0·0	2·0	8·0	14·0	63·0
Number of days 36° and under	0·0	0·0	0·0	0·0	1·0	4·0	6·0	5·0	0·0	0·0	0·0	0·0	16·0
Meekatharra—													
Temperature:													
Mean max., °F.	100·4	99·7	93·9	85·7	76·0	68·6	67·5	71·2	78·6	84·8	92·9	98·2	84·8
Mean min., °F.	73·1	73·1	69·4	61·0	52·5	46·3	44·0	46·5	51·0	56·9	64·7	70·0	59·0
Highest max., °F.	113·0	114·1	110·4	104·2	94·4	85·0	81·7	90·7	97·0	103·0	109·1	110·6	114·1
Lowest min., °F.	54·0	54·1	50·6	42·4	33·0	26·4	31·6	32·2	34·0	40·2	43·0	51·9	26·4
Number of days 90° and over	28·8	24·3	21·7	9·8	0·3	0·0	0·0	0·1	1·8	8·3	17·9	25·6	138·6
Number of days 100° and over	18·6	13·7	6·2	0·3	0·0	0·0	0·0	0·0	0·0	0·4	3·5	10·6	53·3
Number of days 36° and under	0·0	0·0	0·0	0·0	0·2	0·9	1·3	0·1	0·0	0·0	0·0	0·0	2·5

TEMPERATURES AT REPRESENTATIVE CLIMATOLOGICAL STATIONS—*continued*

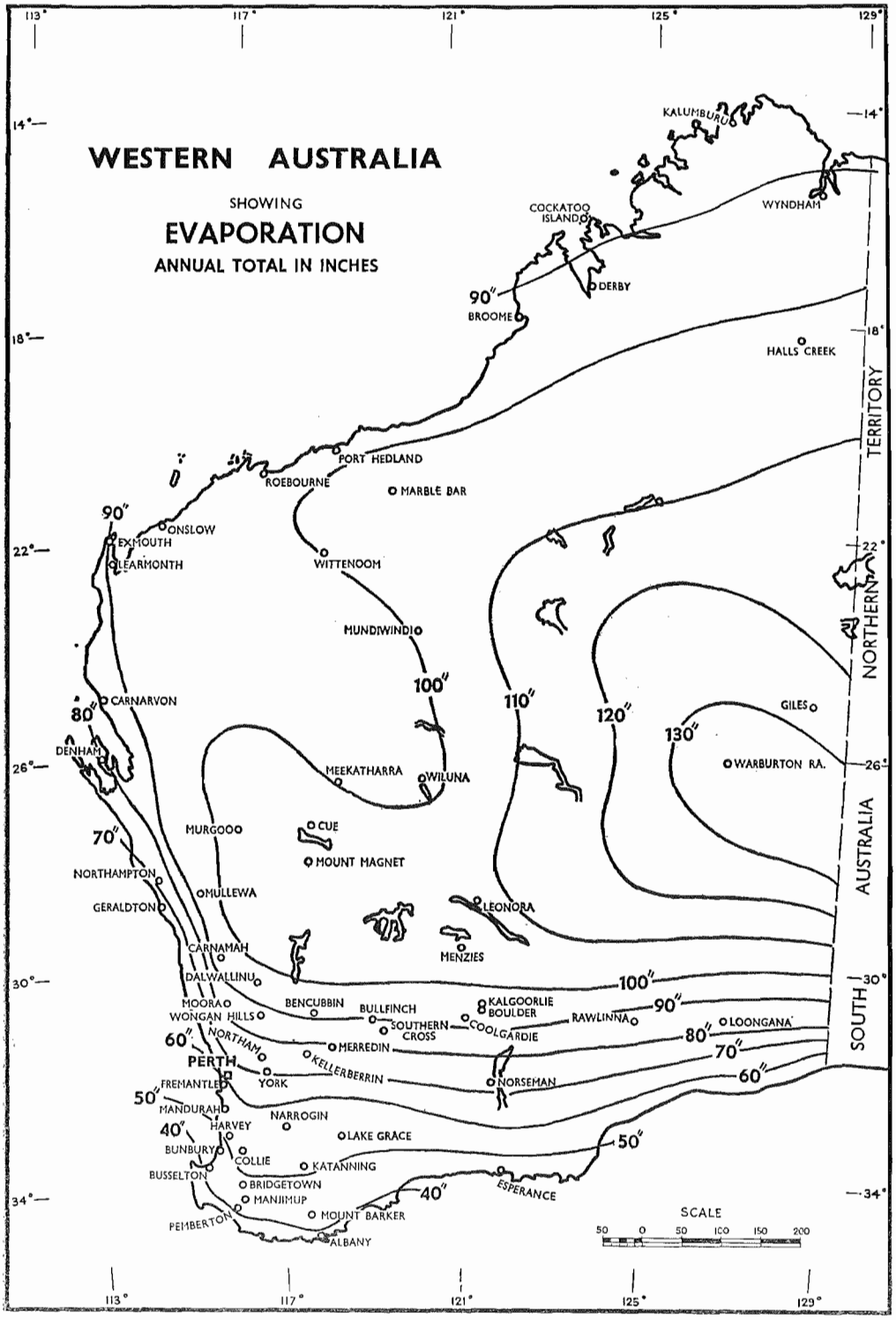
Reporting station and characteristic	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
OTHER INLAND—*continued*													
Laverton—													
Temperature:													
Mean max., °F.	96·4	95·0	89·3	81·1	71·8	64·9	64·1	68·2	76·2	82·1	89·6	94·9	81·1
Mean min., °F.	68·7	68·2	64·4	56·9	49·0	43·5	41·3	43·7	49·2	54·7	61·8	66·7	55·7
Highest max., °F.	115·0	115·0	112·0	104·0	95·0	86·3	86·1	93·0	98·2	105·0	111·0	114·0	115·0
Lowest min., °F.	50·0	45·5	43·0	37·0	30·4	27·0	24·5	27·0	30·0	36·0	40·0	50·0	24·5
Number of days 90° and over	24·0	20·0	15·0	5·0	0·0	0·0	0·0	0·0	2·0	7·0	16·0	23·0	112·0
Number of days 100° and over	12·0	10·0	4·0	0·0	0·0	0·0	0·0	0·0	0·0	1·0	5·0	10·0	42·0
Number of days 36° and under	0·0	0·0	0·0	0·0	1·0	4·0	6·0	4·0	0·0	0·0	0·0	0·0	15·0
Kalgoorlie—													
Temperature:													
Mean max., °F.	93·2	93·0	86·3	78·4	70·1	63·6	62·5	66·0	73·6	79·0	86·3	91·1	78·6
Mean min., °F.	64·2	64·4	61·3	55·2	48·9	44·6	42·9	43·9	48·2	52·7	58·3	62·3	53·9
Highest max., °F.	114·4	115·0	111·0	102·5	92·0	81·8	81·0	87·0	96·0	105·2	110·6	113·0	115·0
Lowest min., °F.	47·1	48·0	41·6	35·0	28·8	27·4	26·0	27·7	30·9	30·2	38·2	45·5	26·0
Number of days 90° and over	18·8	12·9	10·8	2·9	0·1	0·0	0·0	0·0	0·4	2·9	7·4	14·8	71·0
Number of days 100° and over	7·5	4·3	2·7	0·3	0·0	0·0	0·0	0·0	0·0	0·1	1·3	3·9	20·1
Number of days 36° and under	0·0	0·0	0·0	0·1	0·3	1·8	3·9	3·6	0·3	0·0	0·0	0·0	10·0
Rawlinna—													
Temperature:													
Mean max., °F.	90·0	89·8	84·4	78·0	71·2	65·3	64·2	67·3	74·4	79·0	84·4	88·8	78·1
Mean min., °F.	58·9	59·2	57·8	52·2	46·4	41·6	39·3	41·1	45·3	49·4	54·2	57·6	50·2
Highest max., °F.	118·0	115·5	112·0	104·0	95·0	88·3	85·0	93·0	102·7	107·0	112·2	114·3	118·0
Lowest min., °F.	42·0	41·0	42·9	35·0	32·0	29·2	27·8	26·2	31·6	33·2	36·4	41·2	26·2
Number of days 90° and over	14·8	10·8	10·3	2·8	0·5	0·0	0·0	0·0	1·7	3·6	7·9	13·3	65·7
Number of days 100° and over	6·8	3·5	3·2	0·2	0·0	0·0	0·0	0·0	0·1	0·8	2·5	5·7	22·8
Number of days 36° and under	0·0	0·0	0·0	0·0	1·2	3·5	5·3	4·4	0·8	0·2	0·0	0·0	15·4
Collie—													
Temperature:													
Mean max., °F.	86·4	85·7	80·4	74·3	65·9	61·3	59·8	61·0	64·8	68·8	77·2	83·0	72·4
Mean min., °F.	55·6	54·9	52·5	47·1	42·9	40·4	39·1	39·8	42·5	45·3	49·7	53·1	46·9
Highest max., °F.	112·0	110·2	105·4	98·0	86·8	76·0	73·0	79·0	86·6	97·4	101·8	106·2	112·0
Lowest min., °F.	37·7	35·2	32·3	29·6	28·0	24·8	25·0	26·2	28·0	31·0	32·6	35·0	24·8
Number of days 90° and over	13·0	11·3	8·0	1·2	0·0	0·0	0·0	0·0	0·0	0·3	2·1	5·7	41·6
Number of days 100° and over	2·2	1·4	0·7	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·1	1·1	5·5
Number of days 36° and under	0·0	0·0	0·1	0·8	5·3	7·8	7·9	6·6	5·9	1·8	0·3	0·1	36·6
Manjimup—													
Temperature:													
Mean max., °F.	78·3	79·4	74·8	69·5	62·8	59·3	57·4	58·7	61·4	64·7	71·0	75·3	67·7
Mean min., °F.	53·7	54·0	53·0	50·5	46·5	44·5	42·5	43·0	43·7	46·2	49·3	51·8	48·2
Highest max., °F.	107·0	105·0	102·0	92·0	81·0	72·0	71·0	76·4	82·5	92·0	99·3	100·0	107·0
Lowest min., °F.	42·0	40·0	38·0	35·0	34·0	33·0	27·0	30·0	31·0	33·0	35·0	40·0	27·0
Number of days 90° and over	5·7	4·3	3·3	0·5	0·0	0·0	0·0	0·0	0·0	0·0	0·3	2·0	16·1
Number of days 100° and over	0·3	0·1	0·2	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·1	0·7
Number of days 36° and under	0·0	0·0	0·0	0·1	0·5	1·3	2·3	3·2	2·1	0·1	0·0	0·0	9·6
Pemberton—													
Temperature:													
Mean max., °F.	78·7	78·5	75·1	68·9	63·6	60·1	57·9	59·6	61·6	64·6	69·8	73·9	67·7
Mean min., °F.	55·4	56·1	54·8	51·3	48·4	46·8	44·4	44·2	44·9	46·6	49·8	52·9	49·6
Highest max., °F.	106·0	103·0	102·0	93·0	80·0	72·0	70·0	78·0	83·0	87·0	95·0	100·0	106·0
Lowest min., °F.	40·0	40·0	39·0	37·0	32·0	34·0	32·0	30·0	31·5	35·0	35·8	39·0	30·0
Number of days 90° and over	3·9	2·8	2·5	0·4	0·0	0·0	0·0	0·0	0·0	0·0	0·5	2·1	12·2
Number of days 100° and over	0·6	0·0	0·1	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·7
Number of days 36° and under	0·0	0·0	0·0	0·0	0·2	0·7	1·3	1·6	0·9	0·2	0·0	0·0	4·9
Mt Barker—													
Temperature:													
Mean max., °F.	78·1	78·3	74·1	69·7	63·0	58·8	57·2	58·7	61·9	65·3	71·3	75·4	67·7
Mean min., °F.	54·1	54·3	53·4	50·5	46·8	44·1	42·0	42·4	44·0	45·9	49·3	52·2	48·3
Highest max., °F.	111·0	110·5	105·0	96·8	87·0	75·8	70·0	77·0	84·8	96·0	102·9	109·3	111·0
Lowest min., °F.	35·0	39·0	38·5	36·0	33·0	32·0	28·0	29·7	31·0	33·0	34·0	34·0	28·0
Number of days 90° and over	4·3	4·0	2·5	0·4	0·0	0·0	0·0	0·0	0·0	0·1	1·0	2·8	15·1
Number of days 100° and over	0·8	0·8	0·2	0·0	0·0	0·0	0·0	0·0	0·0	0·0	0·1	0·3	2·2
Number of days 36° and under	0·0	0·0	0·0	0·1	0·3	1·5	3·5	3·3	1·9	0·4	0·0	0·0	11·0

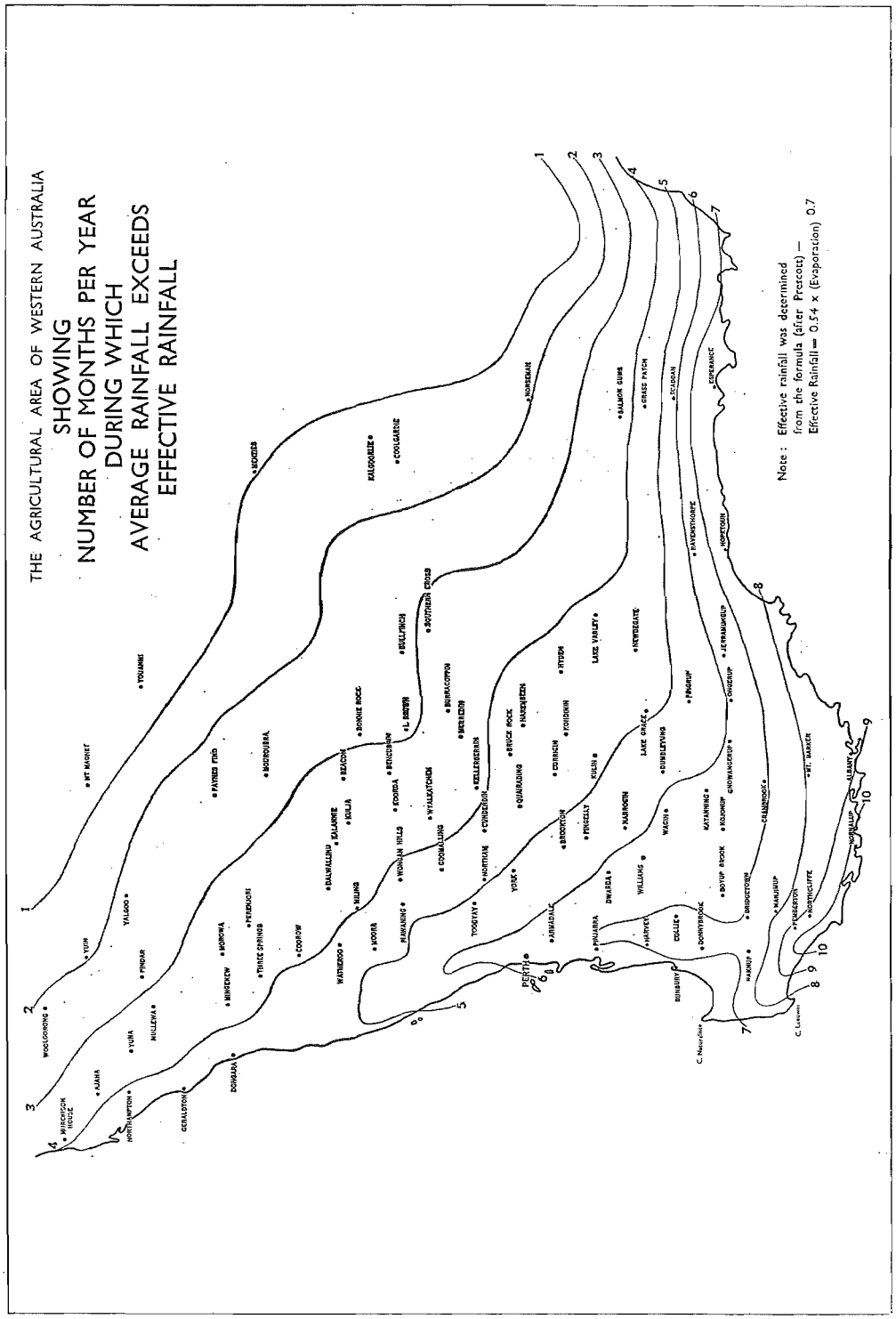
THUNDERSTORMS

Thunderstorms are most frequent along the Kimberley coast where they occur during the ' Wet ' season but are practically unknown in the ' Dry '. In the remainder of the tropics they occur over roughly the same period but the season is a little shorter and the storms less frequent.

In most of the State south from the tropics thunderstorms are most frequent in the summer months but in the south-west they are more uniformly distributed and in many places in coastal districts they are most frequent in winter.

The winter storms are often accompanied by hail which, however, is usually not heavy enough to cause any damage. Hail accompanying summer storms can be much heavier, and occasionally damages ripening crops in the wheat belt. Both winter and summer thunderstorms may be accompanied by severe squalls, but these are infrequent.


WESTERN AUSTRALIA
SHOWING
EVAPORATION
ANNUAL TOTAL IN INCHES
KALUMBURU
WYNDHAM
COCKATOO ISLAND
DERBY
BROOME
HALLS CREEK
PORT HEDLAND
ROEBOURNE
MARBLE BAR
ONSLOW
EXMOUTH
LEARMONTH
WITTENOOM
MUNDIWINDI
CARNARVON
DENHAM
MEEKATHARRA
WILUNA
GILES
WARBURTON RA.
MURGOO
CUE
MOUNT MAGNET
NORTHAMPTON
MULLEWA
GERALDTON
LEONORA
MENZIES
CARNAMAH
DALWALLINU
MOORA
WONGAN HILLS
BENCUBBIN
BULLFINCH
SOUTHERN CROSS
KALGOORLIE BOULDER
COOLGARDIE
RAWLINNA
LOONGANA
NORTHAM
MERREDIN
PERTH
KELLERBERRIN
NORSEMAN
FREMANTLE
YORK
MANDURAH
HARVEY
NARROGIN
LAKE GRACE
BUNBURY
COLLIE
KATANNING
BUSSELTON
BRIDGETOWN
MANJIMUP
ESPERANCE
PEMBERTON
MOUNT BARKER
ALBANY
SCALE
50 0 50 100 150 200
TERRITORY
NORTHERN
AUSTRALIA
SOUTH
90"
80"
70"
60"
50"
40"
100"
110"
120"
130"
14°
18°
22°
26°
30°
34°
113°
117°
121°
125°
129°


THE AGRICULTURAL AREA OF WESTERN AUSTRALIA
SHOWING
NUMBER OF MONTHS PER YEAR
DURING WHICH
AVERAGE RAINFALL EXCEEDS
EFFECTIVE RAINFALL
Note : Effective rainfall was determined from the formula (after Prescott) —
Effective Rainfall = 0.54 x (Evaporation) 0.7
PERTH
ALBANY
ESPERANCE
KALGOORLIE
COOLGARDIE
MOORA
YORK
NORTHAM
NARROGIN
MERREDIN
KATANNING
BRIDGETOWN
MANJIMUP
BUNBURY
COLLIE
DONNYBROOK
BOYUP BROOK
KOJONUP
WILLIAMS
HARVEY
WAGIN
DUMBLEYUNG
LAKE GRACE
NEWDEGATE
LAKE VARLEY
HYDEN
KULIN
PINGELLY
NUNGARIN
DWARDA
WICKEPIN
ARTHUR RIVER
KENDENUP
GNOWANGERUP
JERRAMUNGUP
RAVENSTHORPE
HOPETOUN
RAMMUTT
SALMON GUMS
GRASS PATCH
ESPERANCE
1
2
3
4
5
6
7
8
9
10

EVAPORATION

Except in the lower south-west, evaporation from a free water surface exceeds the annual rainfall, and in a large proportion of the State it is more than ten times greater than the rainfall.

It is least in the winter months, amounting in July to less than one inch in the far south-west, and to about eight inches in the northern tropics. In January, when evaporation is highest, it totals about five inches on the far south coast and reaches fourteen inches in the East Gascoyne and North-Eastern Meteorological Districts. Further north, evaporation is reduced by the moister air over the tropics at this time of the year.

The map on page 45 shows total annual evaporation throughout the State.

GROWING SEASON

Less moisture is required to sustain plant life when evaporation is low than when it is high, and the minimum amount required can be related to evaporation from a free water surface.

That part of the year during which rainfall is greater than this minimum amount (the 'effective rainfall'), may be taken as the *growing season.* The map on page 46 shows the length of this season in the agricultural area of the State. It is based on average monthly rainfall and effective rainfall, the latter being calculated from the formula $P = 0{\cdot}54 \times E^{0{\cdot}7}$ (after Prescott), where P is effective rainfall and E is evaporation (both in inches per month).

METROPOLITAN CLIMATE

Perth has more sunshine and a greater number of clear days during the year than any other State capital city. It also has the wettest winter, the driest summer, and is the windiest of the capital cities. The highest temperature recorded in Perth was 112·2° on 8 February 1933 and the lowest temperature on record of 34·2° occurred on 7 July 1916.

CLIMATOLOGICAL DATA—PERTH OBSERVATORY

(For other data relating to Temperature and Rainfall see preceding tables)

Month	Wind				Temperature				Relative humidity (Saturation = 100%)		Sunshine	Cloud (proportion of sky covered)	Evaporation
	Prevailing direction		Speed		Highest in sun		Lowest terrestrial		Mean	At 3 p.m.	Mean daily amount	Mean of readings at 9 a.m., 3 p.m. and 9 p.m.	Mean amount
	9 a.m.	3 p.m.	Average	Highest									
Number of years of observations	30 (*a*)		30 (*a*)	54	62		67		30 (*a*)		30 (*a*)	30 (*a*)	30 (*a*)
			mph	mph	°F.	date	°F.	date	%	%	hours	%	inches
January	E.	SSW.	10·9	50	177·3	22/1914	39·5	20/1925	53	43	10·4	29	10·37
February	ENE.	SSW.	10·7	54	173·7	4/1934	29·8	1/1913	52	43	9·8	31	8·63
March	E.	SSW.	10·1	70	167·0	19/1918	36·7	(*b*)	57	46	8·8	35	7·52
April	ENE.	SSW.	8·5	63	157·0	8/1916	30·8	26/1960	60	48	7·5	42	4·62
May	NE.	WSW.	8·4	74	146·0	4/1925	25·0	31/1964	68	58	5·7	54	2·80
June	N.	NW.	8·4	80	135·5	9/1914	25·9	27/1946	72	63	4·8	59	1·82
July	NNE.	W.	8·8	85	133·2	13/1915	25·1	30/1920	73	63	5·4	56	1·76
August	N.	WNW.	9·4	97	145·1	29/1921	26·6	18/1966	71	60	6·0	56	2·37
September....	ENE.	SSW.	9·4	68	153·6	29/1916	27·2	(*c*)	64	57	7·2	49	3·44
October	SE.	SW.	10·0	65	161·2	19/1954	29·8	16/1931	64	54	8·1	48	5·38
November....	E.	SW.	10·7	63	167·0	30/1925	34·8	1/1968	57	47	9·6	39	7·65
December....	E.	SSW.	11·0	64	168·8	11/1927	38·0	29/1957	54	46	10·4	32	9·69
Year—													
Average....	E.	SSW.	9·7	....	....	....	....	....	62	52	7·8	44	....
Extremes	....	....	....	97	177·3	22/1/14	25·0	31/5/64	....	....	....	....	....
Total	....	....	....	....	....	....	....	....	....	....	....	....	66·05

(*a*) Standard 30 years' normal (1911–1940). (*b*) Recorded on 8 March 1903 and 16 March 1967. (*c*) Recorded on 8 September 1952 and 6 September 1956.

SNOW

Snow has been known to fall as far north as Wongan Hills, but it is only in the southern districts that it occasionally lies on the ground. It is seen on top of the Stirling Range for a short time nearly every winter, but elsewhere is very infrequent and of negligible importance.

TORNADOES

A tornado is the most concentrated and most violent of all storms. Although not as extensive as a tropical cyclone, its winds reach higher speeds and, in proportion to the extent of the storm, they cause much more damage.

These storms have been reported under various names since the early days of Western Australian history. They have been called at different times severe storms, whirlwinds, cyclones, hurricanes, willy willys, cockeyes, cockeye bobs, cockeyed bobs, tornadic squalls and tornadoes. The first is mentioned in the *Perth Enquirer* of 1842, which describes how ' on the night of 17th/18th June the Leschenault district was visited by a furious storm which made a lane through the forest from 300 to 400 yards wide. For about 200 yards in the middle of this lane nothing is now standing except bare trunks of trees. Young healthy trees were generally broken off about two or three yards from the ground. The trees on either side stood up like a wall, and are free from injury.'

An extract from a report on a storm which passed over Fremantle Gaol in 1856 states ' at 5.30 p.m. yesterday a whirlwind passed over the prison at Fremantle. Watching from one of the upper windows the upper part of a waterspout was clearly defined. A large black cloud made a hissing noise and carried away everything before it. The whole northern boundary wall (150 yards long, 20 feet high and 2 feet 6 inches thick) was laid perfectly flat, turning over on its foundations like a hinge. Large gaps were made in other portions of the wall.'

Considering their violence it is surprising that these storms have caused so little damage to life and property in this State.

Formation. They are usually associated with thunderstorms, since the conditions which favour their development are those which also favour development of large cumulo-nimbus cloud and severe thunderstorms. Meteorological factors favouring their development are cold, dry air in the upper levels of the atmosphere separated, initially by a thin layer of stable air, from moist air in the lower levels. This situation is convectively unstable for, if the moist air is lifted until condensation takes place, the resultant cloud may pierce the stable layer and rapidly ascend to high levels, forming cumulo-nimbus cloud with thunderstorms and, occasionally, a tornado.

From the meteorologists' point of view they may be classified as either ' cyclonic ' or ' convective ' according to whether they originate from a well-developed parent low pressure system or from local convective processes similar to those responsible for summer thunderstorms. In most places the majority are of the ' cyclonic ' type, and this holds for Western Australia where they occur most frequently in the South-West Division while that part of the State is under the influence of a large depression centred south-west of the State.

The exact mechanism of a tornado is still not completely understood. Its formation resembles to some extent the development of a whirl in water running out of a bath. When the plug is pulled out, water immediately over the drain hole flows downwards, while water from surrounding areas flows in to replace it and eventually flow downward too. Sometimes, when the flow from all directions is not towards the centre of the descending column, a whirlpool develops, the water spinning very rapidly round a small centre as it flows downwards.

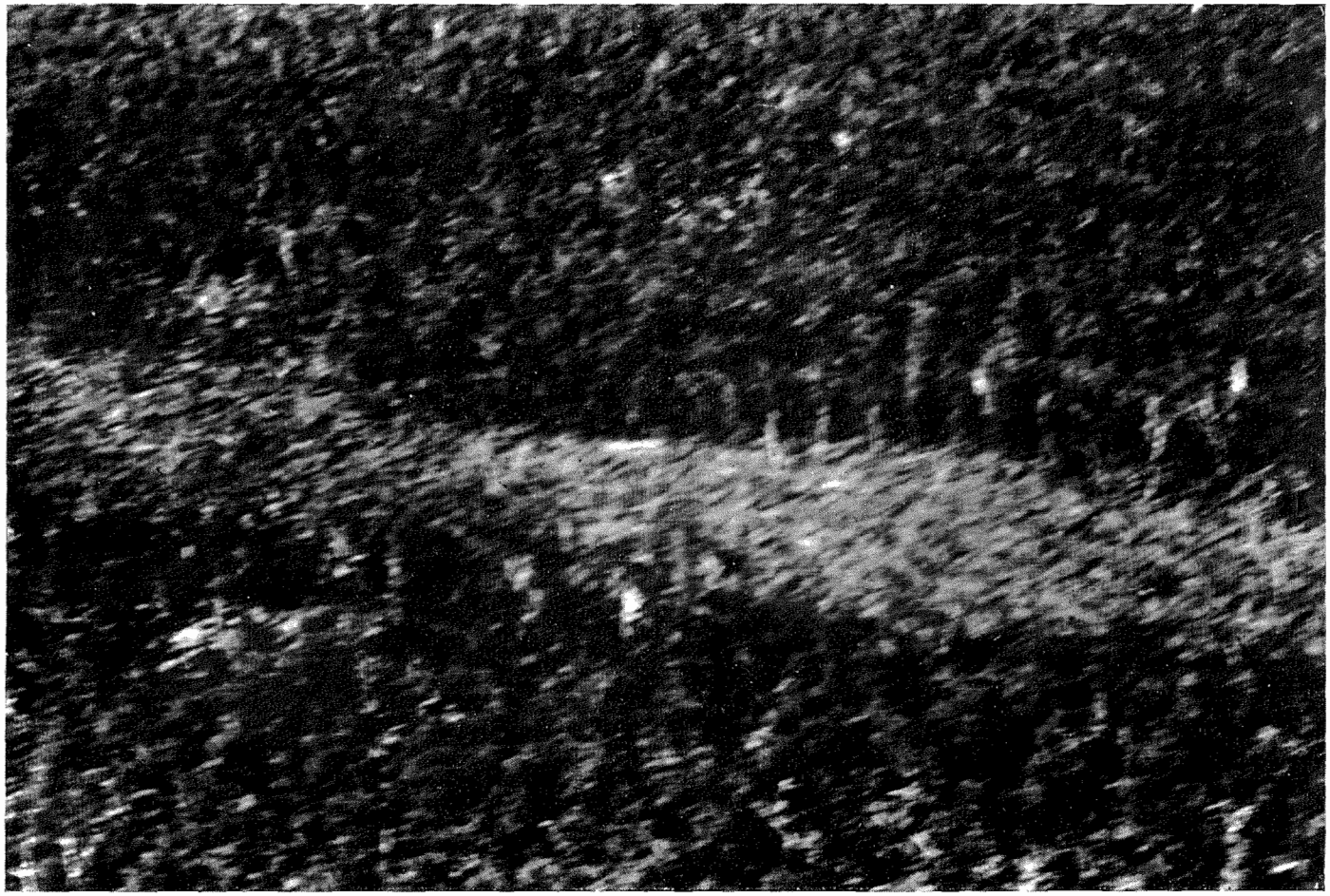
In the tornado situation the whirl appears to develop in air flowing towards a break in the stable layer through which a column of moist surface air is flowing upward to form a cumulo-nimbus cloud. Once the whirl has developed it moves across the country with



TORNADO

The structure of a typical tornado is strikingly illustrated in the photograph of a storm which occurred near Richmond, New South Wales on 20 February 1956. Clearly seen is the narrow funnel of cloud extending downwards from the base of a heavy dark cloud towards the earth, where it is surrounded by debris.

Photograph by courtesy of 'The Sydney Morning Herald'



PATH OF A TORNADO

Tornadoes are the most intense and most localised of all storms, the area of damage being almost entirely confined to the path of the storm, which may be as narrow as 100 yards.

Illustrated is the path left by a tornado after passing through a Jarrah forest at Mungalup, near Collie, on 6 April 1960.

the speed of the air in which it is embedded, being carried along like a whirlpool in a river. Because air at different levels travels at different speeds, the rotating column does not maintain the same inclination to the ground at all times, but bends and at times leaves the ground altogether, to descend again further along the storm track.

Area of Formation. Tornadoes occur in all of the continents but they are best known in North America, where they cause damage which averages well over $10 million annually but varies very considerably from year to year. In Australia they appear, in general, to be less severe than in America, and as the country is less closely settled they do much less damage. It is probable that in the more sparsely settled areas most of them are never reported, but they can occur in any part of the State and are reported most frequently from the South-West Division.

Structure. The typical tornado may be described as an intense spiral motion around a vertical or inclined axis, often with a narrow funnel of cloud extending downwards from the base of a heavy dark cloud towards the earth, where it is surrounded by a cloud of dust and debris. The rapid rotation of winds around the axis of the storm causes a reduction of pressure and consequent lowering of temperature in the core of the circulation, where water vapour is condensed to cloud, making the funnel visible.

If the air is comparatively dry, the funnel is likely to be narrow, while moister air results in a thicker funnel. In some cases the funnel cloud does not reach the whirl of dust and debris at the earth's surface but such a storm can still be dangerous, as damage is caused by the strong winds of the surface whirl rather than the pendent cloud. Some of the most destructive of the American tornadoes have occurred without a pendent cloud being seen, possibly because of dust or general low cloud. In Australia, although the funnel cloud is seen at times, there are many instances in which it is not seen, and in many cases the trail of destruction left by the storm is the main evidence of its existence.

Path. Because these are the most intense and most localised of all storms, when one travels through forest country its path is often quite evident from the swathe of uprooted and broken trees through otherwise undamaged forest. The illustration opposite shows the path left by such a storm after passing through the jarrah forest near Collie in April 1960. Forestry officials estimated that timber damaged in this storm would provide 10,000 loads of mill logs, 3,000 poles and 18,000 lengths of mine timber and would be sufficient to keep a local mill working for about one year.

The path of this tornado varied in width from about 100 yards to 400 yards and extended for twenty miles. Other tornadoes in this area mostly have shorter paths, ranging from less than 100 yards to about ten miles. Damage may be continuous or occur at intervals, leaving sections of the path almost untouched.

In heavy jarrah forest, trees of up to four feet in diameter are uprooted or blown down, some are left standing with all the branches wrenched off them, and others up to about eighteen inches in diameter are snapped off at heights of from six feet to thirty feet from the ground. Surprisingly little damage is done near the ground in heavy forest country, probably due mainly to the slowing of the lower level winds flowing into the tornado by the thick growth surrounding it on all sides. In some places where tall timber has sustained heavy damage, lower scrub has been unharmed and dead leaves have remained attached to branches which had fallen in the path of the storm at an earlier date.

Localised Effect. The extremely localised effect of these storms can be illustrated, for example, by the barometric pressure record for Dwellingup on 16 June 1954. Although a tornado cut a six-mile path through the forest and passed only 1½ miles from the weather-observing station on this day, no sign of it appears on the barograph and there was nothing unusual about the weather, except that residents of Dwellingup heard a noise like an approaching express train as the storm passed them.

In another tornado which passed through Naval Base in June 1968, houses within the storm track were completely wrecked while others, just outside the storm path, were practically undamaged. This storm was about 100 yards wide when it raged through the settlement, but about a quarter of a mile further inland the swathe of damage through banksia trees on top of a hill was only about twenty yards wide.

Pressures. A factor which contributes to the damage caused by wind in these storms is the very low pressure in the storm's centre. If it should pass over a building with doors and windows closed, the difference between the normal atmospheric pressure within the building and the external low pressure will produce a large outward force on the walls and ceiling. Accurate measurements of pressure reduction in the tornado centre are not available, but barometric changes of as much as 3½ inches have been quoted in America. If, to allow for possible inaccuracy in the measurement, the pressure fall is taken as half of this amount, it is still sufficient to produce a lifting force of over eleven tons on the roof of a ten feet by ten feet cabin, and a corresponding outward pressure on the walls. It is probable that this effect contributes to the sudden removal of entire roofs from buildings, which happens at times during storms of this nature.

Winds. Maximum wind speed in tornadoes is likewise unknown, for various reasons, one of them being that a large tornado would blow most anemometers away. However, wind speeds of over 200 mph have been measured by Doppler radar, and it is probable that considerably stronger winds occur in some tornadoes.

In the last thirty years wind speeds measured at the Perth Observatory, when it was near King's Park, have reached 97 mph once, and 80 mph on two other occasions. Damage to trees in the ten acres of surrounding parkland was insignificant and did not remotely resemble the devastation of the jarrah forest described above.

One of the dangers associated with these storms, and arising from the very strong winds, is the risk of being hit by flying debris. Sheet iron is wrapped around posts as if it were plastic sheeting and there are instances of straws being driven half an inch into trees. In 1952, for example, a tornado at Keysbrook tossed a horse against a fence, killing it, plucked trees two feet in diameter out of the ground, lifting them fifty feet in the air, and wrecked a house, before moving into the hills and leaving a trail for six miles through the forest country.

Noise. Another feature of a well-developed tornado is the noise which accompanies it, and can be heard well before the storm arrives. It has been likened to many things. One author described it as ' a peculiar whistling sound that rapidly changes to an intense roar, reaching a deafening crescendo as it strikes '. A bushman who saw the 1954 Dwellingup storm passing his residence during the night, said that the forest was ' all lit up ' as it passed, and that for about half an hour before this he heard it coming as ' a roar with thunder and lightning and trees going down '. The sound of one near Boyup Brook in 1962 was described as ' like two heavily loaded semi-trailers coming slowly up the road, with a dull constant roar like thunder, and soon a snapping noise, slow and continuous, which we realised was trees being snapped off '. A neighbour described it as ' a dull roaring sound, which rapidly became more intense, and then the steady, merciless, cracking of trees '.

The roaring sound is a wind effect, and has been heard occasionally high in the air when no tornado has reached the ground—at least not in the same locality.

Waterspouts. When a tornado passes over the sea it becomes a waterspout—a column of spray replacing the column of dust and debris which forms at the foot of the funnel cloud over the land. Conversely, when a waterspout moves inland it may continue as a tornado.

Some waterspouts are not associated with very strong winds and may be caused by conditions other than those which produce tornadoes. Although some have caused very severe damage, in general their winds seem to be less severe than those of an inland tornado. This may be because the maritime air flowing into a waterspout would, in general, be

moister than air over the land and would condense at a higher temperature than the air over inland districts, thus enabling a visible funnel cloud to form in conditions which would not be severe enough to produce it in drier continental air.

Such a storm was seen lifting water from the sea into the air as it approached the coast at Cottesloe in 1955. It raised a violent flurry of sand as it crossed the beach and sand-hills, then continued inland to damage fences, power and telephone lines and about fifty houses in a path between the beach and Stirling Highway, approximately 1½ miles inland.

INTERSTATE COMPARISONS

In general, humidity and rainfall are lower in Western Australia than in corresponding places in eastern Australia. The following table shows average rainfall, mean humidity and temperature for groups of reporting stations at approximately the same latitude. The stations have been selected in such a way that, in each pair, one is on the west coast and the other on the east coast or, where a pair relates to inland stations, each station is situated at about the same distance from the coast. The group appearing last in the table has been included to provide a comparison between observations at Albany, the most southerly town in Western Australia, and those at places elsewhere in Australia at about the same latitude. The height above mean sea-level is also given for each station.

INTERSTATE COMPARISONS—RAINFALL, HUMIDITY, TEMPERATURE

Reporting station	Height above mean sea-level	Average rainfall		Relative humidity (*a*)		Average daily mean temperature	
		May to October	November to April	May to October	November to April	May to October	November to April
	feet	inches	inches	%	%	°F.	°F.
Bunbury	17	29·96	5·01	77	70	57·0	67·5
Sydney, New South Wales	138	21·53	23·27	66	69	58·2	69·3
Perth	52	30·24	4·80	69	55	58·2	70·8
Newcastle, New South Wales	112	20·56	20·80	70	74	58·7	69·7
Kalgoorlie	1,247	5·16	4·53	58	48	58·0	74·5
Cobar, New South Wales	822	5·88	6·73	59	46	56·3	75·2
Geraldton	13	16·04	2·39	67	62	62·3	73·0
Brisbane, Queensland	137	12·01	28·08	66	69	63·3	74·7
Wiluna	1,700	3·21	6·59	50	35	60·4	80·9
Charleville, Queensland	965	6·19	11·78	55	46	61·1	79·5
Carnarvon	15	6·48	2·60	63	63	65·5	77·4
Bundaberg, Queensland	45	10·86	31·51	73	74	64·5	75·7
Mundiwindi	1,840	2·74	8·28	39	30	63·0	82·4
Longreach, Queensland	612	3·92	11·62	50	50	65·7	82·3
Onslow	14	4·45	4·88	55	56	69·3	82·9
Mackay, Queensland	35	11·49	51·67	78	80	66·8	77·7
Port Hedland	25	3·33	9·23	50	59	72·6	85·3
Townsville, Queensland	73	5·49	37·57	66	73	71·7	80·3
Derby	53	1·67	23·78	51	65	76·9	86·5
Innisfail, Queensland	22	35·88	103·27	85	85	69·7	78·1
Wyndham	23	1·13	25·51	43	59	80·9	88·0
Cooktown, Queensland	17	8·08	59·79	76	78	75·1	81·1
Albany	41	28·75	8·87	76	73	55·8	64·3
Adelaide, South Australia	140	14·42	6·67	64	45	56·5	69·6
Swan Hill, Victoria	230	7·88	5·21	70	54	53·4	69·8
Canberra, Australian Capital Territory	1,837	11·85	11·45	72	61	57·5	64·0

(*a*) Saturation = 100%.

Chapter II—continued

Part 3—The Vegetation of Western Australia

With Special Reference to Toxic Plants

Contributed by R. D. Royce and T. E. H. Aplin
(Western Australian Herbarium, Department of Agriculture)

The flora of Western Australia comprises over 6,500 Angiosperms, some fifty ferns and over 400 marine algae, as well as many mosses, lichens and liverworts which have never been completely listed.

It is one of the most interesting floras of the world, due very largely to its high degree of endemism, *i.e.* the large number of species which are entirely restricted to the region. This is especially noticeable in the South-West Vegetation Province, which extends from Shark Bay at its northern extremity to Israelite Bay on the south coast and has an eastern boundary approximating closely to the ten-inch isohyet.

It has been estimated that the endemism of the South-West flora is as high as 75 per cent. When compared with island floras, this may not, of course, appear to be a very impressive total. The Hawaiian Islands for instance record an endemism of 90 per cent and more, but the number of species and the actual area of land involved are not very great. When considered as a portion of a continent, however, the figure for the South-West flora is a particularly high one and is possibly exceeded only by the Cape Province of South Africa and some areas of the South American continent.

Despite this high percentage of endemism among its species, and the consequent great interest centred around the Western Australian flora, it is not to be regarded as being completely different or highly individual when considered from the standpoint of its larger groups. At the generic level, the western flora is remarkably similar to that of eastern Australia, while the plant families in Australia as a whole are well represented in other countries.

Speaking of the Australian flora as a whole in his *Introduction to the Flora of Tasmania* (1859), J. D. Hooker states: 'It contains more genera and species peculiar to its own areas, and fewer plants belonging to other parts of the world, than any country of equal extent. About two-fifths of its genera, and upwards of seven-eighths of its species, are entirely confined to Australia. On the other hand, if, disregarding the peculiarities of the flora, I compare its elements with those of the floras of similarly situated large areas of land, or with that of the whole globe, I find that there is so great an agreement between these that it is impossible to regard the Australian vegetation in any other light than as forming a peculiar but not an aberrant or anomalous botanical province of the existing Vegetable Kingdom; that with only two small exceptions, the Australian families are also found in other countries; that most of those most widely diffused in Australia are such as are also the most widely distributed over the globe; and that Australia wants no known family of general vegetation. . . . Turning again to other countries which are remarkable for the peculiarity of their vegetation, I find that South America contains many more peculiar families than Australia, and South Africa about as many'.

In Western Australia there is only one truly endemic family, the Cephalotaceae, a family which consists of only one species, the Albany Pitcher Plant, *Cephalotus follicularis*. This remarkable plant, with leaves closely resembling those of the insect-trapping *Nepenthes* of tropical Asia, is found in sandy soils in and around low-lying swampy areas along the south coast as far east as Mount Manypeaks and extending northwards to the Blackwood and Margaret Rivers.

The other families in Western Australia are represented either in eastern Australia or in countries overseas. In a great many of these families, however, the degree of speciation is very much greater in the South-West than in other areas of their occurrence. This raises an interesting point connected with the origin of the State's flora, since this large number of species could have arisen under two very different circumstances. Either the ancestors of the present flora evolved on the ancient land mass of the south and, after centuries of intense speciation, gradually spread into other countries thus developing their present distribution patterns or, on the other hand, the ancestral plants may have originated outside of the present Australian continent, and the development of species may then have followed the migration of primitive forms into Australia where conditions were suited to a vigorous speciation. The large number of species in individual families may therefore denote either an ancient and truly ancestral group, or it may indicate a very successful but younger migrant family.

VEGETATION PROVINCES

It has been said that of all the factors which determine and control the vegetation of the earth, the climatic factor is the most important, and rainfall and temperature are the most important of the climatic elements. In Western Australia there are three distinct climatic regions. These are the tropical north with a short hot rainy period, the temperate south with a rainy period occurring in the coldest months, and the arid interior which has no regular rainfall pattern. The flora is remarkably different within these three areas which for this reason have been used as natural divisions of the flora. Diels referred to them as the Northern, the South-West and the Eremean Provinces. A map showing the boundaries of the three Provinces appeared in the *Western Australian Year Book*, No. 7—1968 and earlier issues.

The description of the climatic and vegetative characteristics of these Provinces and their Formations contained in the following sections is by C. A. Gardner, formerly Government Botanist of Western Australia.

Climatic Characteristics

The *Northern Province* extends over the Kimberley Division to some few miles southward from the Fitzroy River, thence contracting into a narrow coastal isthmus in the vicinity of the Eighty Mile Beach, and expanding southward to include the De Grey River and the greater part of the Fortescue system. It is the area which, lying north of the Tropic of Capricorn, receives its rain entirely in the summer months, with a seasonal rainfall during the four wettest months ranging from about seven inches in its southern portions to over forty inches in parts of the Kimberley Division, and has an annual mean maximum temperature of 90° F. or over, although during the growing season temperatures may be even higher. The season from the commencement of April until the end of October is relatively rainless.

The *South-West Province* extends from the southern end of Shark Bay in the north to Israelite Bay in the south. On the western and southern sides it is bounded by the ocean, while its inland boundary passes close to Mullewa, Morawa, Koorda, Bencubbin, Burracoppin, Hyden, Ravensthorpe and Grass Patch. It is pre-eminently the winter rainfall province which receives its maximum rainfall from May to August inclusive and, with the exception of the southern portion, experiences a seasonal drought extending from November to March or April. The average maximum temperature is less than 80° F. with much lower temperatures during the growing season.

The *Eremean Province* lies between the Northern and the South-West Provinces, and occupies approximately two-thirds of the total area of the State of Western Australia. It is intermediate in character between the other two; its rainfall is received either from extensions of summer rainfall southward (and this makes up the greater portion, especially such rainfall as is received from tropical hurricanes during the late summer months), or in the south from extensions of the winter systems, while, rarely, a general rainfall may occur throughout.

Vegetative Characteristics

The *Northern Province* is essentially the savannah-steppe Province in that a herbaceous ground-covering mainly composed of grasses occurs. This varies from the rich grasslands of the Kimberley to the harsh spinifex ' steppe ' of the country southward from the Fitzroy, broken only by the alluvial grassland plains of the De Grey and Fortescue districts, especially the Roebourne Plains. Scrubland as such is unknown, except to a very limited extent in the rough sandstone range country of north-west Kimberley. Forests as such do not occur and Mulga too is absent. Floristically the Province is characterised by the part played by the ' Indo-Melanesian Element ' in its constitution. In places this element may predominate to the extent that amongst the trees *Eucalyptus* plays a secondary role, and deciduous trees are prominent. The grotesque Baobab is common, together with various soft-wooded trees, while the herbaceous growth is rich in members of the *Hibiscus* family and several others. With the exception of the river bank and swamp formations, most herbaceous growth is either dead or resting during the winter months.

The *South-West Province*, on the other hand, is characterised by a total absence of the Indo-Melanesian influence, and its flora bears a distinct southern or ' Antarctic ' impress. Trees and shrubs predominate with a marked diminution of grasses, and there is no true grassland. The herbaceous species are of winter growth, and the plants remain dormant during the dry summer months, especially the species of *Acacia* and Casuarinaceae. The Proteaceae, which assume a minor role in the North, here hold sway, as do the Myrtaceae and Leguminosae. The principal formations are forest woodland and scrubland, with extensive tracts of sand heath. Mulga and spinifex are absent and the various salt bushes either exist as inhabitants of the physiologically dry salt pans, or occur only marginally. There is a distinctive plant architecture among the woody plants in which the effect of the dry season is apparent.

The *Eremean Province* is again intermediate. Floristically it is characterised by the ' Australian Element ', recruited from northern and southern influences, and those hardy species which have arisen in response to an adverse environment. Notably there is an increase in the spacing of plants due to root competition between neighbours. The result is a series of ' open formations '; Mulga bush, consisting of leafless species of *Acacia* with resinous or stiff leaf-like phyllodes; a predominance among the shrubs of species of *Acacia, Cassia* and the attractive species of *Eremophila*, notable for the size and colour of their blossoms. The Northern influence is expressed most strongly by the Spinifex (*Triodia*) which is the dominant tussocky grass of the lighter and stony soils, while the Mulga occupies the more closely-grained soils, the true mulga (*Acacia aneura*) being restricted to hard-pan soils. The Southern Element is most strongly asserted in the loose red sand and around granite rocks, the former carrying those sand-loving species for which the South-West is famous (even the Blackboy extends into the heart of the Eremea) while the species of the granite rocks owe their existence to an improvement in the water content of the soil in addition to the shelter and shade provided by declivities. In the northern portions of the Province we find, where watercourses provide permanent pools and moister conditions than elsewhere, an intrusion of the Northern Element, especially in the grasses and the herbaceous flora generally. Savannah and steppe occur in the north, Mulga and spinifex steppe occupy the middle areas, while in the south we have woodland formations, with some degree of heath development. The salt soils carry distinctive associations of salt-tolerant plants in which salt bushes are predominant, and this same formation occurs on the limestone soils of the Nullarbor Plain. Forests are absent.

VEGETATION FORMATIONS

Within the three large Vegetation Provinces plant species are grouped into associations which are basically dependent on soil type. The soil, within the limits of each rainfall zone, governs the amount of water available to the plants and influences the habit and character of the plant cover. Thus there are Forest Formations, Woodland Formations, Shrub Formations and many others.

The Forest Formations of the South-West

The Jarrah Forest. The most important of the forest formations of the South-West is that dominated by the Jarrah (*Eucalyptus marginata*), which reaches its greatest development in the lateritic soils from the Darling Scarp eastward to the twenty-inch isohyet, although it does occur also on the sandy coastal soils. Within the forest area Jarrah forms an almost pure stand, but along watercourses Blackbutt (*Eucalyptus patens*) is common, while Marri (*Eucalyptus calophylla*) is almost always present where sandy soils occur. In the richer soils of the valleys, Wandoo (*Eucalyptus redunca* var. *elata*) and Powder Bark Wandoo (*Eucalyptus accedens*) commonly occur, the latter being usually associated with granite outcrops. The understorey of the Jarrah forest consists principally of *Banksia* and the related *Persoonia*, *Hakea* and *Dryandra*, together with the Christmas Tree (*Nuytsia floribunda*), Sheoak (*Casuarina fraseriana*), Blackboy (*Xanthorrhoea preissii*) and Zamia (*Macrozamia riedlei*) in varying associations.

The Karri Forest. To the south of the Jarrah forest, in an area where the rainfall is heavier and more evenly distributed throughout the year, the Karri (*Eucalyptus diversicolor*) forms almost pure stands in certain light types of soil, mainly on the hillsides. Associated with it in the valleys is Bullich (*Eucalyptus megacarpa*), a tree which closely resembles Karri, while Jarrah and Marri occur where there are gravelly or sandy soils. The understorey consists of the Karri Sheoak (*Casuarina decussata*), Peppermint (*Agonis flexuosa*), Warren River Cedar (*Agonis juniperina*), Bull Banksia (*Banksia grandis*) and River Banksia (*Banksia verticillata*). The shrubby components are Karri Wattle (*Acacia pentadenia*) and Hazel (*Trymalium spathulatum*) with *Hovea*, *Crowea* and *Boronia* providing masses of colour in the flowering season.

The Tingle Forest. Around the lower reaches of the Frankland River, the Karri trees are largely replaced by Red Tingle (*Eucalyptus jacksonii*) occurring mainly on the slopes and tops of hills, and Yellow Tingle (*Eucalyptus guilfoylei*) found mainly in the valleys and low situations generally. The associated vegetation is almost identical with that of the Karri forest.

The Wandoo Forest. There are few large areas of true Wandoo forest in the South-West, although the tree is widely distributed in the country to the north and east of the Jarrah belt. Where the Wandoo penetrates into the Jarrah forest it is associated with an understorey which, though closely resembling that of the Jarrah forest, lacks *Persoonia*, Sheoak and Christmas Tree. In the more open stands to the east, however, it is associated with a much reduced shrubby undergrowth, and frequently with Jam (*Acacia acuminata*). Within the Wandoo forest, the Mallet species *Eucalyptus astringens* and *E. gardneri* form dense associations on stony hillsides, while in the southern portion of the forest the Swamp Yate (*Eucalyptus occidentalis*) occurs freely on the low-lying country.

The Tuart Forest. The Tuart (*Eucalyptus gomphocephala*) occurs in a typical forest formation between Ludlow and Busselton where it is associated with Peppermint, species of *Banksia* and a large number of herbaceous species. The formation extends northward as far as the Hill River and throughout its occurrence is restricted to limestone soils. To the north of Ludlow the forest gradually merges into a sparse woodland formation with an abundance of shrubby undergrowth and relatively few herbaceous species.

Woodland Formations

The Woodland formations differ from the forests of the South-West in being less uniform. Whereas the forest is invariably dominated by a single species, the woodland on the other hand consists of a series of co-dominant species which occupy relatively small areas in the intricate pattern which makes up the mosaic of the Woodland formation. The principal trees are the Salmon Gum (*Eucalyptus salmonophloia*), Gimlet (*Eucalyptus salubris*), Morrel (*Eucalyptus oleosa* var. *longicornis*) and Yorrel (*Eucalyptus gracilis*). Many other species are locally dominant and the undergrowth consists of species of *Acacia*, *Grevillea*, *Hakea* and mallee forms of *Eucalyptus*. This formation is chiefly South-Western, but it extends also into the Eremean Province where, although the tree species remain fairly constant, the undergrowth changes in character with an increasing number of the species of Poverty Bush (*Eremophila*), Saltbushes (*Atriplex*) and Bluebushes (*Kochia*).

Shrub Formations

The Mallee Eucalypts. The mallee form of *Eucalyptus* is found in many districts from the west coast to the South Australian border, and it is absent only from the forest areas of the South-West. Mallee thickets reach their greatest development in the alluvial soils, but they occur in almost any type of soil. In the lighter soils they frequently occur in association with other shrubs, particularly tea tree which at times actually dominates in a sandy habitat.

The Mulga Bush. The Mulga bush occupies a large part of the Eremean Province. This formation extends almost without interruption from the west coast between Onslow and the Wooramel River eastward as far as New South Wales and, although its species may change, it maintains its character and identity throughout. The species of *Acacia* referred to as Mulga have a greyish resinous foliage and it is the dominance of these species, more than anything else, which gives the Mulga bush its character. Component shrubs are rather widely spaced. Another characteristic of the formation is its differential response to rain, a winter precipitation producing an immediate germination of vast numbers of annual and perennial herbs and shrubs, while summer rains promote a vigorous growth of grasses.

The Sand Heath. It is in the sand heath formation that the flora of the State displays the greatest number and diversity of its species, as well as the greatest development of colourful and interesting endemic forms. The most extensive sandplains are found at the northern and eastern extremities of the South-West Province, between Northampton and the Murchison River and from Ravensthorpe to Israelite Bay. They occur also on the eastern fringes of the South-West Province, and in the Eremean Province where important areas occur at Comet Vale and to the east and south of Southern Cross.

Savannah and Steppe Formations

Except for a weak development in Jam and York Gum (*Eucalyptus loxophleba*) country in the South-West, savannah and steppe formations are restricted to the Northern and Eremean Provinces where there are the necessary climatic conditions of summer rains alternating with a dry cool winter. On river flats the dominant species is the Coolabah (*Eucalyptus microtheca*) with a grass element consisting of species of *Sorghum* and Citronella Grass (*Cymbopogon* spp.). In the sandier soils Spinifex (*Triodia* spp.) is the dominant grass, while the tree layer consists of a number of bloodwoods and the Micum tree (*Eucalyptus brevifolia*). On the basalt soils the Grey Box (*Eucalyptus tectifica*) is associated with certain cabbage gums and Kangaroo grass (*Themeda australis*). An interesting type of open savannah occurs in coastal country between the De Grey and Fitzroy Rivers and is referred to as Pindan. In this formation, several species of *Acacia* are associated with a large number of grasses both annual and perennial although in recent years the introduced Buffel Grass (*Cenchrus ciliaris*) is dominating the grass cover.

Southward from the Fitzroy River is the large area of Spinifex steppe dominated by *Triodia*, where very few trees occur. The shrubs are mainly species of *Acacia* and *Cassia*. This formation gradually merges into the more open desert country of the interior, an area which is only now becoming known botanically.

THE POISONOUS PLANTS OF WESTERN AUSTRALIA

The flora of Western Australia is world famous because it includes some of the most spectacular and most bizarre wildflowers in the world, but it is also noteworthy because of the large number of species which contain a toxic principle. Each year these plants take a heavy toll of livestock both in the agricultural and pastoral regions, and are therefore of considerable economic significance to farmers, graziers and pastoralists.

While the botanical history of Western Australia may be said to have commenced in 1699 with the second voyage of William Dampier, the history of poisonous plants, as far as the white man is concerned, goes back to 1676 when Commander Willem de Vlaming reported cases of human poisoning attributed to the seeds of the zamia palm, *Macrozamia*

riedlei (Gaud.) C. A. Gardn. Poisoning of cattle through the consumption of zamia palm leaves was first reported in 1894. Affected animals show locomotory disturbance and a progressive paralysis of the hind limbs. The same type of ' neurological disorder ' has been reproduced in sheep and goats fed leaves of members of the cycad family.

Within a few years of the settlement of the Swan River Colony, settlers began experiencing considerable stock losses, particularly in travelling animals. Suspicion was thrown on a member of the Papilionaceae, the pea-flowered family. Feeding trials conducted in 1839 and 1841 incriminated what was almost certainly York Road Poison (*Gastrolobium calycinum* Benth.) and Champion Bay Poison (*G. oxylobioides* Benth.), respectively. Not long after that, Box Poison (*Oxylobium parviflorum* Benth.) was also shown to be toxic. Both genera belong to the tribe *Podalyriae* of the Papilionaceae, and may be distinguished from each other by the number of ovules present in the ovary. In *Gastrolobium* this is consistently two, whereas in the genus *Oxylobium* the number can vary from four to eight. The genus *Gastrolobium* includes some twenty-seven toxic species. Twenty-five of these are present in the South-West Province with four species extending their range of distribution into the Eremean Province. The remaining species, found in both the Eremean and the Northern Provinces is the only species of this group to extend its range beyond the boundary of Western Australia, through the Northern Territory into Queensland. The genus *Oxylobium* includes seven toxic species. Six are present in the South-West Province with three of these extending their range of distribution into the Eremean Province. The remaining species is restricted to the Eremean Province. The toxic principle, monofluoroacetic acid, has been shown to be present in the majority of toxic species of both genera which have been chemically tested to date. This substance is better known as its sodium salt ' 1080 ' which is used in vermin control. This toxic substance is responsible for the symptoms and post mortem appearances displayed by affected animals. Two classes of signs, in varying degrees, are shown by different animals. The first of these is associated with the central nervous system, the second with the cardio-respiratory system. The quantity of monofluoroacetic acid present in toxic species of the genera *Gastrolobium* and *Oxylobium* has been shown to vary considerably. The lethal dose for an adult sheep, of plants that are highly toxic, such as Heart Leaved Poison (*G. bilobum* R. Br.) and Box Poison (*O. parviflorum* Benth.) is less than an ounce of fresh leaf material.

The genus *Isotropis*, another member of the tribe *Podalyriae* of the pea-flowered family, includes ten or eleven species, all restricted to Australia. Six species are present in Western Australia. Five of these are found in the Eremean Province, although two of these are also seen in the South-West, while a further species, found also in the Northern Province, is seen over a large area of Australia, in the Northern Territory, South Australia, New South Wales and Queensland. The remaining species is found exclusively in the South-West Province. The toxic principle present in *Isotropis* has not been identified. The main effects are exerted on the liver and kidneys, although gastro-intestinal and cardio-vascular lesions are also considered to contribute to acute deaths of livestock.

The genus *Crotalaria* which belongs to the tribe *Genistae* of the pea-flowered family includes over 500 species. Seventeen species have been recorded for Western Australia. All but one of these, which extends its range of distribution into the Eremean Province, are restricted to the Northern Province. Both *C. retusa* L. and *C. crispata* (F. Muell.) Benth. have been shown to cause Kimberley horse disease or ' walkabout ' disease. *C. novae-hollandiae* DC. and *C. verrucosa* L. have been suspected of being toxic, while *C. trifoliastrum* Willd. has been associated with lesions of the liver, lung and urinary bladder. Other species of *Crotalaria* have been associated with stock losses elsewhere. The toxic principle contained in poisonous species of the genus *Crotalaria* are pyrrolizidine alkaloids. The action of these compounds is most marked on the liver, the damage being apparently irreversible and cumulative. Horses affected by these plants walk aimlessly, and suffer from disturbed consciousness, hence the term ' walkabout ' disease. Pyrrolizidine alkaloids are also present in the family Compositae, *e.g.* in *Senecio*, and in the family Boraginaceae, *e.g.* in *Heliotropium*.

The discovery that certain central American species of the Convolvulaceae or morning glory family contained hallucinogenic compounds prompted a search for these substances in *Ipomoea muelleri* Benth. which had for some time been suspected of causing heavy stock losses in parts of the pastoral region of Western Australia. Extracts of seeds run on thin layer chromatographic plates produced spots identical to those attributed to D-lysergic acid amide and D-isolysergic acid amide. The presence of these compounds was considered to have caused the striking behavioural and locomotary changes observed in sheep affected by *I. muelleri* poisoning. The genus *Ipomoea* contains some 500 species, and nineteen of these are present in the Northern and Eremean Provinces of Western Australia.

Hallucinogenic compounds are also contained in species of the genus *Phalaris*, a member of the Gramineae or grass family. These compounds, are regarded as being responsible for the condition known as ' phalaris staggers '. *P. tuberosa* L. and other species of *Phalaris*, which originate from the Mediterranean Region, have been introduced, deliberately or by accident, for use as pasture grasses.

There are a number of poisonous plants in which further work on the nature of the toxic principle needs to be done. Some plants that need to be more fully understood in this regard are the species of *Isotropis*, the lamb poison; *Swainsona* spp., native vetches; *Tephrosia rosea* F. Muell., Flinders River poison; *T. purpurea* Pers.; *Stypandra imbricata* R.Br. and *S. grandiflora* Lindl., the blind grasses; *Atalaya hemiglauca* F. Muell., whitewood; *Indigofera enneaphylla* L., Birdsville indigo; and *Trema aspera* Blume, peach-leaf poison bush.

In Western Australia there are a large number of cyanogenetic plants, *i.e.* plants which, when eaten by stock, are capable of releasing hydrocyanic acid (HCN) or prussic acid. There are also several species which, although they have not been shown to contain HCN, produce poisoning syndromes which suggest HCN or cyanide poisoning. The more important cyanogenetic or cyanogenetic-like plants found in Western Australia are the several species of goosefoot (*Chenopodium* spp.), native fuchsia (*Eremophila maculata* F. Muell.), a number of native spurges (*Euphorbia* spp.), the popflowers (*Loudonia* spp.) and several grasses and sedges.

The prussic acid in cyanogenetic plants is bound to sugar molecules to form cyanogenetic glycosides. When acted upon by an enzyme these glycosides release the HCN molecule which then produces the manifestations observed in animals affected by cyanide poisoning. HCN poisoning is usually associated with plants recovering from setbacks brought about by frosts, drought and fire. Young plants are more highly toxic than mature plants.

The toxic principle in other poisonous plants may consist of alkaloids, bitter principles, coumarins, essential oils, photosensitising compounds, inorganic compounds, oxalates, phenols, saponins or toxalbumins. Some of the more important families which include toxic plants with these types of poison are Apocynaceae, Leguminoseae, Solanaceae, Compositae, Chenopodiaceae and Polygonaceae. The lower plants such as the algae and the fungi contain species that are poisonous to humans and livestock. The toxic blue-green alga, *Anacystis cyanea* (Kuetz.) Dr. and Dail., has been suspected of causing sheep and water fowl mortalities in Western Australia. The toxicity of several collections of this alga has been established. The toxic principle is capable of causing very rapid death. The toadstool genus *Amanita* is represented in Western Australia by several species. It is also probable that certain hallucinatory toadstools, *e.g. Psilocybe* are also present. The death of birds due to *Aspergillus flavus* Link. in peanut meal, has been reported. The contaminated peanut meal, however, originated from outside Western Australia. ' Facial eczema ', a photosensitising disease, caused by the fungus *Pithomyces charatum* (Berk. and Curt.) M. B. Ellis has been reported in Western Australia. The toxic principle causes liver and bile duct damage which impedes normal excretion and this causes the photosensitisation. *Claviceps paspali* Stev. and Hall, which forms ergots in the seed heads of *Paspalum dilatatum* Poir., paspalum, has been reported to cause ergotism or ' staggers ' in livestock. *Helminthosporium biseptatum* Sacc. and Roum., found on *Romulea rosea* (L.) Eckl., has been reported elsewhere to produce infertility. *R. rosea* is a common

weed and it is probable that this pathogen is present in Western Australia. A serious disease which occurs in Western Australia and is known as ' lupinosis ' is considered to be caused by a toxic fungus. Studies aimed at the isolation and identification of the causal agent are proceeding.

Infertility in ewes arising through the consumption of pastures of *Trifolium subterraneum* L., subterranean clover, continues to be an important problem in the agricultural regions of Western Australia. Considerable emphasis has been placed on the selection and development of less toxic strains of subterranean clover, low in oestrogenic potency, to overcome this very important problem.

Studies on the incrimination of poisonous plants, together with their effects on livestock, the identification of their toxic principles, and the establishment of methods of overcoming problems associated with them, are continually being carried out. Plants of potential value as sources of therapeutic drugs are also being investigated. There is, at the present time, a renewed interest in the search for drugs occurring naturally as plant products. The search for these plants in Western Australia has only recently been commenced and there appears to be tremendous scope for research in this field.

CONSERVATION OF THE FLORA

Agricultural expansion in Western Australia since the end of the second World War has been considerable. With increased knowledge of trace elements in relation to plant nutrition, large areas of formerly unused land have been opened up for farming and, since this is of great significance in the economy of the State, it is likely that a steady increase in the use of land, particularly for agriculture, will continue for some time. In the face of this development the flora and fauna must give way. Many plant communities could become extinct and thus be lost to scientists and the general public for all time. The flora of the State is widely recognised, both in Australia and overseas, as being unique and deserving of preservation. Because of the growing need for land for agricultural and pastoral use, conservation of the flora on land not yet cleared is a matter of urgency. It is principally by the creation of vested Flora Reserves that this conservation can be brought about.

Already much has been accomplished but, if sufficient really representative reserves are to be established, there is still a lot to be done. A considerable number of reserves both small and large have already been set aside. Some of the smaller reserves have been established for the protection of a particular species or plant community, while others have been created for purposes, such as water catchment, which although not specifically directed to the protection of the flora do nevertheless assist in the preservation of the plant cover. Among the larger reserves are some which are specifically designed to preserve the whole of the environment and biological structure of important areas such as the Stirling Range, or of flora associations such as sandplain, woodland, and so on. These reserves are as large as they can be made, having due regard to the requirements of agriculture, forestry and other activities in the district. It is the large size and the diverse conditions in these reserves which permit the plants and animals within them to live in equilibrium, without affecting any of the species involved and thus preserving the biological balance.

Many of these reserves are not vested in any authority, but the most valuable are vested either in a Government Department, a special authority or the local governing body. Some of them are legally established as Class ' A ' Reserves. The National Parks Board administers the largest of the reserved areas which have been set aside specifically for the preservation of flora. The principal National Parks are those of the Stirling Range, Porongurups, Walpole-Nornalup and Kalbarri. The Stirling Range in particular is a most valuable botanical area, and is also of value as a fauna reserve. Walpole-Nornalup National Park contains some magnificent stands of timber and some excellent examples of coastal swamp formations, as well as a most picturesque estuary and river mouth.

A number of the most important nature reserves in the State are vested in The Western Australian Wild Life Authority. The main concern of this Authority is the conservation of fauna, but it is obvious that the preservation of the flora within the reserves is of vital

importance to the success of its work in protecting the fauna. Among the reserves administered by The Western Australian Wild Life Authority are Bernier and Dorre Islands at the entrance to Shark Bay, Lake Magenta Reserve south of Newdegate, and the Pingelly Reserve.

The reserves described in the following paragraphs have been selected as being representative of the types of reserves already discussed. Reference to other such areas is made under the heading ' Public Parks and Reserves ' in Part 2 of Chapter V.

Kalbarri National Park is situated near the mouth of the Murchison River and includes the greater part of the gorge of the southern loop of the river, extending almost to the edge of the Ajana agricultural area. It is a large reserve, approximately 358,000 acres in area, and consists mainly of gently undulating sandplain which is underlain by a gravelly soil resting on Cretaceous sediments or in some areas on the Tumblagooda Sandstones of Silurian-Ordovician age. The gorge is one of the most remarkable physiographic features of Western Australia and must in time become one of the foremost tourist attractions the State has to offer. It is extremely rugged and picturesque and its sheer walls drop some 500 feet from the level of the sandplain. Permanent pools of brackish water occur along the gorge.

Three distinct types of flora are recognised in the area. They are the predominant sand heath, the lateritic association along the eastern boundary, and the coastal heath vegetation on the limestone soils. The area is one of the most valuable flora reserves in the State. Its importance is due largely to its location at the northern end of the South-West Province, where it comes under the influence of the Desert or Eremean Province. This overlap of two flora types has resulted in the development of a unique flora, containing an exceptionally large proportion of plants which are entirely restricted to the area. In this connection the species of Banksia are of particular significance, while many other related plants in the Banksia family as well as a number of Myrtles found here occur nowhere else in the world. The gorge of the Murchison River contains many very fine examples of the picturesque River Gum (*Eucalyptus camaldulensis*), as well as a number of endemic species some of which are entirely restricted to this environment. However, it is the heath vegetation of the sandplain for which the area is particularly notable. This formation covers the greater part of the reserve, its flora being extremely rich both in species and in variety of colour and form. It undoubtedly constitutes the richest botanical area of the reserve, and during the spring and early summer it is a blaze of colour. Not only has vigorous speciation taken place here in past ages to produce a number of unique plants, but the reserve also contains the northernmost representatives of several typical South-West plants. Species such as the Firewood Banksia, Blueboy, Tree Smokebush and Mangles Kangaroo Paw extend northwards as far as this reserve, but are not known to occur much further to the north. It is important scientifically that these plants occur within the borders of the reserve, since they will be preserved for all time as evidence of the wide distribution of these and co-existing species.

The *Stirling Range National Park* of 285,874 acres is situated to the east of Tenterden and encloses the entire mountain system of the Stirling Range, which consists of Proterozoic sandstones, shales and slates. The Range reaches to a height of over 3,500 feet and is the dominant landmark of the country to the north of King George Sound. The reserve consists of the mountain range surrounded by a broad undulating plain carrying a low heath vegetation with a predominance of species of Myrtles and of Proteaceae. Stirling Range Poison (*Gastrolobium velutinum*) is common, and many other species of the Pea family also occur. A striking component of this heath is the Red Kangaroo Paw (*Anigosanthos rufa*). Around the base of the mountain peaks are forests consisting principally of stunted Jarrah. Springs and damp areas occur in the forests due to seepage from the higher land and there are several lakes both within the reserve and outside its boundaries. Because of the height of several of the peaks, snow is sometimes recorded, while a cloud blanket frequently covers all but the lowest peaks. Due to these phenomena the reserve contains a highly interesting and scientifically important endemic flora which makes it one of the outstanding botanical reserves in Australia. Altogether there are

over 100 species which occur within the reserve and are not known elsewhere in the world. A large proportion of the plants are outstandingly attractive, prominent among them being the Mountain Bells (*Darwinia* spp.), nine species of which are restricted to the Range while some are entirely confined to a single peak. *Isopogon latifolius* is the most spectacular member of a group which is restricted to Western Australia. It occurs on the upper levels of Bluff Knoll, the highest point in the Range. Several species of *Banksia* and of *Hypocalymma* are endemic in the Range. The high degree of endemism and the spectacular character of the flora, some unique features of the fauna, and the rugged grandeur of the Range itself make the Stirling Range National Park one of the most valuable of the nature reserves of the State.

Bernier and Dorre Island Reserves. Bernier and Dorre Islands, which together comprise an area of about 26,000 acres, constitute portion of the western boundary of Shark Bay. They are some sixteen and nineteen miles in length, respectively, and are very narrow. They are in fact elongated dunes running in a north and south direction and consist largely of quaternary aeolianite with some loose sand. The islands are chiefly of value as fauna sanctuaries, since they contain vigorous populations of six native mammals some of which are rare on the mainland. They are situated at the northern extremity of the South-West Province where they come under the influence of both the South-West and the Eremean Provinces. The vegetation includes typical South-West plants such as *Phyllanthus, Triglochin* and several species of Myrtles, while a number of plants from coastal dunes such as *Spinifex* and some of the Daisy family are common on both islands. The Desert or Eremean flora is represented by the Poverty Bushes, Wattles, *Solanum*, and species of the pea-flowered and the Hibiscus families. The *Triodia* (Spinifex) which occurs over a great part of the interior of the State is also present on Bernier Island and is well represented on Dorre Island. The Northern elements have also penetrated to the islands and occur chiefly among the grasses, of which there are several species. Other plants demonstrating Northern affinities are the native fig, the Caper, *Jasminum*, and the Euphorbiaceae. Several species in the island floras are endemic in the Shark Bay area, and a few were originally collected on the islands. These reserves are of extreme importance biologically both as yardsticks to measure the effects of sheep-grazing on the neighbouring Dirk Hartogs Island and as natural laboratories in which to study and understand the processes of ecological interaction within our native plant and animal communities.

The *Pingelly Reserve* is situated to the east of Pingelly and is an outstanding example of extreme diversity of habitat types in a small area. It is no more than 3,000 acres in extent and consists of lateritic highlands in the northern and southern areas, between which erosion has uncovered masses of the country granite and produced extensive granitic soils. It is particularly rich in native animals while the plant assemblage covers some seven well-marked associations ranging from sandplain to a White Gum woodland. This latter type is found in the more fertile loams in the valleys, where it is associated with Box Poison and Jam. Two different associations of *Acacia* are evident, the more important being that dominated by Jam, occurring on the better-class soils and merging into the White Gum area, the other being a Black Wattle association occurring along the bottoms of the valleys and along the watercourses. Sheoak forms almost pure stands in the granitic soils while thickets of Mallet clothe the steep rocky slopes below the gravelly tops of the hills. Few plants regularly grow in association with Mallet but, in this reserve, Bullock Poison (*Gastrolobium trilobum*) forms a constant understorey. York Gum dominates the flora in certain places, while in the lateritic soils on the tops of the scarps there has developed a mixed association dominated by *Dryandra* and containing several other members of the Proteaceae, together with representatives of the Myrtaceae and other families. It is the sandplain association, however, for which the area is most noteworthy. This vegetation type occurs in seven localities scattered throughout the reserve, each of them being distinctive in one or more respects. For example, one of these localities is distinguished by the Christmas Tree, another by the Narrow-leaved Banksia, a third by a deep yellow sand development, and another by heavily leached white sand where Jarrah is found. Despite its limited area, this reserve contains a remarkable diversity of flora and fauna, making it one of the most valuable of the nature reserves of Western Australia.

Chapter II—continued

Part 4—The Fauna of Western Australia

Contributed by
W. D. L. Ride (Director of the Western Australian Museum)
and
D. L. Serventy (Officer-in-Charge, W.A. Station, C.S.I.R.O., Division of Wildlife Research)

DISTRIBUTION

Terrestrial Vertebrates

An observer who looks carefully at the fauna of a large land mass like the Australian continent will soon discover that its animals are not distributed uniformly throughout it. He will find that groups of species which are characteristic of some places are missing from others. This is because the distribution of animals results both from their response to the physical (*i.e.* ecological) conditions of their environment (and these are not uniform from place to place), and from their past histories. For example, the presence of routes along which a species could have moved in the past, and of barriers which would have made its movement from one place to another impossible, decide whether any species could have reached a particular locality by today. But whether it has persisted there until today depends upon local conditions having been suitable for it.

The relationship between the distribution of a species and the character of its environment may be demonstrated dramatically and most easily by comparing the distribution of animals with that of climate, and in particular with its components of temperature, rainfall and the time of the year at which rain falls. In Western Australia many species lie within one or other of the boundaries of two rather different climatic regions. These are the South-West with its regular and plentiful rainfall during cold winters, and the Kimberley with regular, plentiful rainfall during hot summers. The remainder of the State receives intermittent and unreliable rainfall in quantities which vary widely; some parts of this area (*e.g.* the Pilbara) receive their small amount of rain principally in the summer and other parts (*e.g.* the Nullarbor) in the winter.

An analysis of most of the Western Australian groups of vertebrate animals shows that they can be referred to three faunal assemblages characteristic of these climatic regions. These assemblages are called *faunas* and have been named by zoogeographers *Bassian* which, in this State, is the fauna characteristic of the South-West; *Torresian* which, in this State, is characteristic of the Kimberley; and *Eyrean* which is the fauna which occupies the land between. While the composition of a fauna is, generally speaking, characteristic of the area in which it occurs, the occurrence of a particular species in a fauna does not mean that it will not be found in another because each of the faunas has several elements which are sufficiently wide in their requirements for them to occur as ' foreigners ' in the faunas of neighbouring regions. Examples of these are the species with predominantly Torresian populations (and apparently histories of origin) which are found today in the otherwise Eyrean fauna of the Pilbara district of the North-West; and various Eyrean species which occur in the Bassian fauna of the South-West.

Among the birds the sharpest faunal break is between the Torresian fauna of the Kimberley division and the Eyrean fauna of the Pilbara. The Kimberley is the headquarters in Western Australia of the Scrub Fowl (*Megapodius freycinet*), the Fruit Pigeons (Ptilinopinae), Lorikeets (*Trichoglossus* and *Psitteuteles*), the White Cockatoo (*Kakatoe galerita*) and most of the Grass Finches. The Torresian species which penetrate further southwards include the Brolga (normally only to Onslow), White-breasted Wood Swallow (to Shark Bay), and the Brown Honeyeater (right through to the South-West).

Among mammals there seem to be a few truly Torresian species in Western Australia. Examples would be the Fruit Bats or Flying Foxes (*Pteropus* and *Macroglossus*), the Little Rock Wallaby (*Paradorcas concinna*), the Jungle or River Wallaby (*Macropus agilis*) and the Antelope Kangaroo (*Macropus antilopinus*). On the whole most of the mammal species which occur in the Kimberley seem to be characteristic of that part of the Eyrean fauna inhabiting the country which receives intermittent rainfall during the summer.

Even among birds, the boundary between the majority of the Eyrean species and the bulk of the Bassian species is less well defined than that which separates Eyrean and Torresian faunas as there is a good deal of overlapping. For example, the line which separates the woodland eucalypts and the mulga, the so-called ' mulga-eucalypt line ', is the extreme limit of most Bassian species, though many do not range inland beyond a line connecting Geraldton, Moora, Northam and the Stirling Range. The mulga-eucalypt line separates, to quote an example, the main distributions of the Grey Kangaroo (Bassian) and the Red Kangaroo (Eyrean). This line is the northern limit of other well known Bassian species such as the Red Wattle Bird.

The South-West of the State has representatives of many well known Bassian species also found in south-eastern Australia. These include among birds, the Brush Bronzewing, White-tailed Black Cockatoo, Western Rosella, Scarlet Robin, Yellow Robin, Southern Emu-Wren, Silvereye, White-naped Honeyeater, Western Spinebill, New Holland Honeyeater and Red-eared Firetail. Among mammals there are the Pigmy Possum, the Wambenger, the Grey Kangaroo, the Tammar Wallaby, the Brush Possum and various dunnarts (marsupial mice, *Sminthopsis*). Among frogs there are various *Crinia* and *Heleioporus inornatus* and *australiacus*; and fishes such as *Galaxias* and *Nannoperca*. However, there has been an extensive intermingling of Eyrean and Bassian elements in the South-West on a scale not paralleled in south-eastern Australia. In the South-West we have a blend of faunas in the sclerophyll forests which, though essentially Bassian in character, contain such Eyrean intrusives as the Purple-crowned Lorikeet, the Twentyeight Parrot, the Rufous Tree-creeper, the Western Warbler, the Banded Blue Wren and the Red-tipped Diamondbird.

It must also be recognised that the distribution of animals that we see today is only a relatively recent pattern. There have been very drastic climatic changes in Western Australia during the last 2 million years and the discovery of fossil remains in local caves has shown that there has been a dramatic change in both faunal composition and distribution in the South-West. There has been an ebb and flow, as it were, of faunal elements out of and into the South-West. During the times when suitable conditions reigned, various mammals occurred which are now extinct in this State but still persist in south-eastern Australia. These included the Koala, the Tasmanian Wolf (*Thylacinus*) and the Tasmanian Devil (*Sarcophilus*). In other times, creatures which are now living only in the desert country of the northern interior ranged as close to Perth as Jurien Bay. Among these were the Crest-tailed Marsupial Mouse (*Dasycercus*) and the desert dunnarts *Sminthopsis hirtipes*. The Ghost Bat (*Macroderma gigas*) once ranged as far south as the Margaret River; it is now known no nearer than Wiluna, the Warburton Range country, and the Barlee Range.

Climatic alterations, on a minor scale, are constantly going on. In the past half-century, or longer, there has been a considerable change in northern Europe, Asia and America, an amelioration in some parts and a drying-up in others, with widespread effects on the distribution of animals. Something similar appears to have been taking place in Western Australia. Many dry-country bird species, of the Eyrean faunal assemblage, have made notable extensions of range into the south-west corner. These include the Galah, Little Corella, Budgerygah, Smoker Parrot, Crested Pigeon, Black-faced Woodswallow, Crested Bell-bird, Blue-and-white Wren, Black-throated Butcher-bird and Little Crow. The records of local naturalists, who keep district lists of local birds and mammals over a period of years, are very useful sources of data for plotting these changes. Frequent Museum surveys will provide more positive information.

In some cases distribution changes due to natural causes may be masked or modified through the alterations of habitat due to settlement. These habitat changes act to the detriment of woodland birds but favour open-country species (like pipits and plovers).

Coastal Marine Fauna [1]

The nature of the coastal waters varies from the warm mangrove-lined mud flats of the north to the clean sandy bays and cool crystal-clear waters of the south. The types of coastal marine habitats depend on the range of tide, the exposure to oceanic swells, the sediments carried off the land by wind or river and some local biological activities such as reef coral or algal building. There is a gradual change in water temperature, salinity and other physicial characteristics of the sea as one moves along the long Western Australian coastline of 4,350 miles; these changes reflect the nature of the adjacent water mass modified by local effects such as occur in large and small embayments, near river mouths or behind protecting headlands.

The coastal waters may be divided into several broad zones, as follows:

1. North: from the Western Australian-Northern Territory border to Cape Leveque with very broken coastline, a high tidal range, high runoff from well vegetated hinterland and no exposure to heavy oceanic swell.
2. North-north-west: from Cape Leveque to Cape Keraudren with eighty miles of low beach, a high tidal range, little regular runoff from desert sands which are blown into the sea by the 'South-East Trades'.
3. North-west: from Cape Keraudren to North West Cape with an indented coastline, moderate tidal range, irregular runoff from some mountains and desert sands.
4. West-north-west: from North West Cape to Kalbarri with some high cliffs, a deep embayment (Shark Bay), moderate tidal range, irregular low runoff from little vegetated desert hinterland and exposed to the south-west oceanic swell.
5. West-south-west: from Kalbarri to Cape Naturaliste with fairly smooth low white sandy coastline and some limestone headlands; rainfall moderate with little runoff from coastal sands, water clear; tidal range low, coast exposed to the south-west swell.
6. South-west: from Cape Naturaliste to Israelite Bay with broken headland and surf beach formations, high south-west swell exposure, low tidal range, many inlets and low-volume river discharges.
7. South-east: from Israelite Bay to the Western Australian-South Australian border with smooth coastal outline of beaches and some cliffs, modified exposure to south-west swell, low tidal range and low rainfall runoff.

Certain coastal marine areas are special in the sense that they represent either a transition (*i.e.* rapid change of character) between two adjacent zones or possess unique features found in such combinations nowhere else on the coast. Examples of such special places are the coastal waters in the Broome to Derby region, around North West Cape, in Exmouth Gulf, in Shark Bay, the Perth metropolitan beaches (Mandurah to Wanneroo), around Cape Naturaliste and around Cape Leeuwin.

The islands and reefs off the coast are also regarded as special because of their marine faunal peculiarities; for example, the Houtman Abrolhos, the Monte Bellos, the Rowley Shoals, the Ningaloo-Cardabia Barrier Reef and the Recherche Archipelago.

The marine fauna of the north coast is distinct from that of the south coast although a few species do occur in both regions. The northern fauna is regarded as part of the Indo-West Pacific fauna, and the southern fauna of Western Australia as part of the southern Australian fauna. On the west coast there are several species which are endemic to this region only. One of these is the Western Australian commercial rock lobster *Panulirus cygnus* and another is the Western Australian commercial jewfish *Glaucosoma hebraicum*.

[1] Written in collaboration with Dr R. W. George.

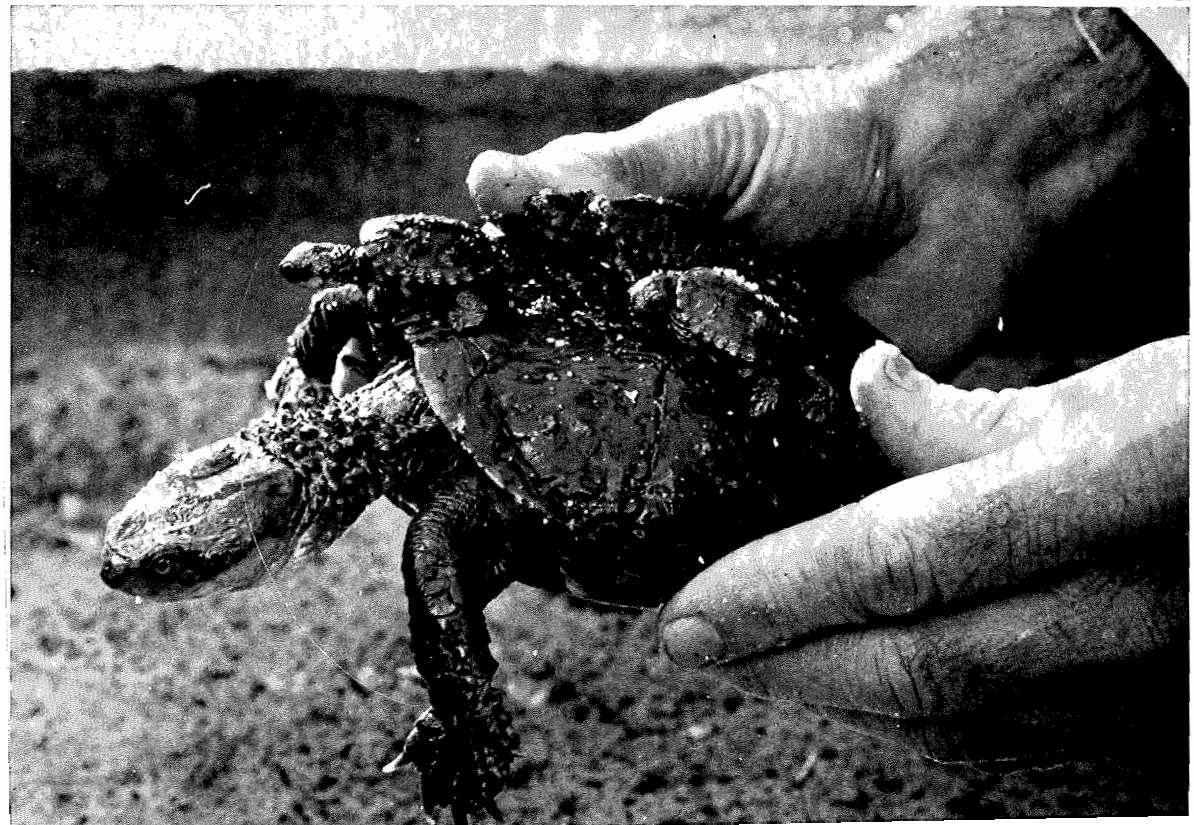


DINGO

(*Canis familiaris*)

The Dingo (*Canis familiaris*) is still common in much of Australia. It is economically significant because it kills sheep and in Western Australia several million dollars have been spent on the control of dingoes since 1927. Although very similar to domestic dogs in appearance, several features distinguish dingoes from domestic dogs—e.g. their mating behaviour, gait and characteristic howl. One litter, usually of five to seven pups, is produced each year. It is usually a tawny yellow colour although other colours are sometimes observed in the wild.





NUMBAT

(*Myrmecobius fasciatus*)

The Numbat (*Myrmecobius fasciatus*) was formerly found in northern South Australia and south-western New South Wales but the Numbat now seems to be confined mainly to the white gum country of Western Australia's south-west. Active during the day, unlike most marsupials, it feeds on termites using its immensely long tongue and shelters in hollow logs on the forest floor. Numbats are remarkably unafraid and can be seen in State Forests (*e.g.* at Dryandra, near Wandering in Western Australia) within an easy day's drive from Perth.

Blocks by courtesy of the Zoological Gardens Board

SHORT-NECKED TORTOISE

(*Pseudemydura umbrina*)

The South-western Short-neck (*Pseudemydura umbrina*) is much the rarest of Australian tortoises. They have only been found in a small area north-east of Perth, a twelve-mile long strip of country between Pearce and Middle Swan. Here they live in small swamps which fill with the winter rains and after the water dries up in summer the tortoises shelter under fallen leaves and branches. It is estimated that there are no more than 200 individuals living today. They are totally protected and most of their habitat is preserved.

Fauna of Inland Waters (2)

The inland waters are of many types and possess very varied faunas. They may be divided into four main ecological groupings: (1) the rivers of the Kimberley Division; (2) the river systems of the North-West from the De Grey to the Murchison; (3) the streams, swamps, and lakes of the south-west corner; and (4) the temporary waters of the dry inland represented by two widely different habitats, (i) freshwater claypans and soaks (including man-made dams) and (ii) the salt lakes.

The rivers of the North-West from the De Grey to the Murchison flow only intermittently, and between times of flood the fauna must survive in widely separated spring-fed pools in river beds. These pools, like those at Millstream Station on the Fortescue River, are often of striking beauty. Their fauna is relatively sparse as compared with the richer assemblages in the Kimberley rivers, the most conspicuous element being a few fish species and a freshwater tortoise (*Chelodina steindachneri*) which is confined to the region.

The permanent hill streams of the South-West have a diverse arthropod fauna. Most of these are insects but, in addition, there are several species of freshwater crayfish and freshwater mussels in slower-running parts—Marron (*Cherax tenuimanus*) occur in permanent streams of deep water; Jilgie (*C. quinquecarinatus*) in shallow permanent water; Koonac (*C. preissi*) make burrows in the mud of swamps. A species of a closely related group, the so-called ' land-crabs ' (*Engaewa*), has been recently discovered in the swamps of the South-West. Most rivers stagnate and may become saline in summer; they are reduced to chains of large or small pools to which the fauna is restricted. The small transparent prawn *Palaemonetes* is often abundant in these pools. Shallow permanent lakes and swamps near the coast also have a fairly varied insect fauna, among which certain species of dragonflies are particularly abundant; at times there are enormous numbers of *Daphnia* and related small crustaceans.

The inland freshwater claypans are characterised by an interesting ephemeral fauna, mainly of phyllopod Crustacea. The most conspicuous is the large shield shrimp (*Triops australiensis*) but a variety of fairy shrimps (Anostraca and Conchostraca) occur also. The eggs of these creatures survive for years in the dried mud and development is rapid when the claypans fill after occasional rains.

The most conspicuous animals in the waters of the salt lakes are the brine shrimps (*Artemia* and *Parartemia*), which at times build up to such high population densities as to attract large flocks of Banded Stilts, which breed only in certain of the inland salt lakes.

The fishes of the inland waters are described in a subsequent section.

THE COMPOSITION OF THE FAUNA

The fauna of Western Australia includes representatives of all major phyla of the Animal Kingdom and individuals range in size from the Blue Whale (*Balaenoptera musculus*), the largest mammal that has ever lived, to minute single-celled protozoa which cannot be seen without a microscope. No estimate can be made of the number of species, and probably the number of species of insects alone out-numbers all the rest by a comfortable margin. Here we have not attempted to describe all phyla. The vertebrates are given fairly full treatment because they are obvious and familiar animals to most of us. The insects (mostly those of economic importance) are dealt with in Part 5 of this Chapter, and the remaining phyla are treated in a few paragraphs which confine themselves to groups of interest.

Mammals

Unlike the birds and reptiles, wild mammals are not frequently seen in most parts of Western Australia. This is because most of the species are small and secretive and appear only at night. However, there are exceptions and, as any traveller in inland and northern parts of the State can attest, kangaroos of one species or another can often be seen in large numbers during daylight hours.

(2) Written in collaboration with Dr E. P. Hodgkin.

Most species of mammals have distinct ecological preferences which allow them to be categorised into one or other of the three main faunal groups which are described earlier in this Part under the heading *Distribution*. For example, in the kangaroo family, the Tammar Wallaby (*Macropus eugenii*), the Quokka (*Setonix brachyurus*), and the Brush Wallaby (*Macropus irma*) are found only in the South-West or on certain isolated islands off the coast. Of these, the Brush Wallaby is closely related to the South Australian Toolache Wallaby (*Macropus greyi*) and the Tammar to the Flinders Island Wallaby and the now extinct St Peter Island Wallaby of South Australia. The most familiar kangaroo of the dry country with unreliable rainfall is the Red Kangaroo or Marloo (*Megaleia rufa*), while in the summer-rainfall country of the Kimberley Division we find such species as the Jungle or River Wallaby (*Macropus agilis*), the Little Rock Wallaby (*Peradorcas concinna*) and the Organ-grinder Wallaby or Karrabul (*Onychogale unguifer*). In addition to the species which sort out in this convenient way, there are others which are widely distributed and in fact occur as members of all three faunal assemblages. The most familiar members of the family which do this are the Euro or Biggada (*Macropus robustus*), the Boodie (*Bettongia lesueur*), and the Rock Wallaby (*Petrogale penicillata*). Of these, the Euro may still be found anywhere in suitable local habitats from the Kimberley to the South-West and inland across the South Australian border. At one time this was true also of the Boodie and the Rock Wallaby which, however, are today unfortunately absent from much of their former range.

So far, only the kangaroos have been mentioned but, in fact, representatives of all three major divisions of the mammals (*i.e.* monotremes, marsupials and placentals) occur in the State.

The egg-laying monotremes are represented by the Echidna (*Tachyglossus aculeata*), sometimes called Spiny Anteater or Porcupine. This curious and completely inoffensive animal is not uncommon in the country around Perth and it even appears on occasions in densely-settled suburban areas. In drier districts, its diggings, made in its search for insects, are familiar around rocky hills and breakaways.

Marsupials, or pouched mammals, occur in great variety in Western Australia. The kangaroos and wallabies, already mentioned, are the herbivorous members of the group. These animals are the Australian evolutionary equivalent of the antelopes, deer, and horses of the other continents and there is often an extraordinary similarity in structure between members of the kangaroo family and these other herbivores. These similarities extend even to such details as the physiology and shape of the stomach and other organs of digestion. The reproductive systems of marsupials and their physiology have also long been of great interest to biologists because they differ from those of other animals. For example, it is now known that in the Quokka, and some other wallabies, the adults mate again immediately after the birth of the 'joey'. The embryo which is the product of this second mating does not develop immediately but is held in a dormant state in the female system. However, if the first young joey is lost from the pouch, this dormant embryo immediately begins to develop and a second joey is produced after a minimum period of time.

In Western Australia the kangaroos and wallabies are all terrestrial (there are no tree kangaroos), and even their arboreal relatives, the phalangerids, are few in number as compared with other parts of Australia. The Brush Possums, the Pigmy Possums and the Ring-tails have Western Australian representatives, but the Koalas and the striped Possums are absent, and of the four species of flying possums of eastern Australia only one (*Petaurus breviceps*) occurs in Western Australia and that only in the Kimberley Division. Although the species of possums in Western Australia are few in number, there are some unique forms which are of great interest. One of these is the rare Scaly-tailed Possum (*Wyulda*) of the Kimberley; unlike other Australian possums this animal has a hairless scaly tail and only twelve specimens of it are known. There is also the curious and rarely-seen Honey Possum (*Tarsipes*) of the South-West. Wombats are known to have occurred in Western Australia around the turn of the century and were thought to be extinct until a small colony was rediscovered in 1965 near Caiguna in the Eucla Division.

Although the large carnivorous marsupials no longer live in the State, the smaller representatives of this group are still fairly common. There are two separate species of native-cats, a southern species (*Dasyurus geoffroii*) and a northern one (*Dasyurus hallucatus*), as well as many species of smaller carnivorous and insectivorous forms. One of the smaller members of this family, the Dibbler (*Antechinus apicalis*), one of our least-known marsupials and last recorded in 1884, was rediscovered during 1967 at Cheyne Beach near Mount Manypeaks on the south coast. Studies are being made at La Trobe University on its biology.

The remaining group of marsupials is that commonly called the bandicoot family. One of these, the Pig-footed Bandicoot (*Chaeropus ecaudatus*) is probably the State's rarest mammal, but it once occurred in the Nullarbor region where its remains have recently been discovered in caves and two living specimens of it were collected by John Gilbert in 1841 some miles to the north-east of Northam. No confirmed record has been made of the species in Western Australia since then. On the other hand another species of bandicoot, the Quenda, or Short-nosed Bandicoot (*Isoodon obesulus*), is one of the commonest of marsupials. Its scratchings are common in country gardens and the little animal is often run over and found dead on roads. It lives largely on insects, and being nocturnal it is seldom seen but it is nevertheless very common in many areas in the South-West.

The third main group of mammals is that of the higher mammals or placentals. Animals of this group occur in Western Australia in addition to the marsupials and the monotremes, and it always comes as something of a surprise to visitors (who generally have a strong preconception of Australia as a land in which all but introduced mammals and the Dingo are pouched mammals and monotremes) to learn that there are many species of Western Australian native placental mammals. In fact, if the seals, whales, and Dugong which occur around our coasts be counted, the species of native placental mammals outnumber the marsupial and monotreme species.

The composition of the mammal fauna is shown in the following table.

Kinds of wild mammals	Number of species occurring in Western Australia (*a*)		Kinds of wild mammals	Number of species occurring in Western Australia (*a*)	
Monotremes		1	Introduced placentals—		
Marsupials		60	Rodents	5	
Native placentals—			Land carnivores	2	
Bats	23		Ungulates (Horses, Deer, Camels, etc.)	9	
Rodents	24		Rabbits	1	17
Marine mammals :				—	—
Seals (*b*)	2				
Dugong	1				
Whales	22		TOTAL, ALL SPECIES		151
Land carnivores—Dingo	1	73			—

(*a*) Total numbers of species are from *A Guide to the Native Mammals of Australia* by W. D. L. Ride. (*b*) Only resident seals are counted. Antarctic seals are occasionally 'shipwrecked' on southern coasts but these are clearly stragglers into the area.

Within Western Australia the best-established groups of native placental mammals, *i.e.* the bats and rodents, are distributed in much the same ecological manner as are the marsupials; some are dry country forms like *Leggadina hermannsburgensis*, the small mouse which builds mounds of pebbles on stony ridges(3), others are predominantly animals of the wet tropics like the majority of the Fruit-bats or Flying Foxes (*Pteropus* and *Macroglossus*), while yet others are confined to the country of reliable winter rainfall in the South-West, *e.g.* the Southern Bush-rat (*Rattus fuscipes*). These native placental mammals are of great zoological interest because some of them, and in particular the

(3) It is suspected that these may be dew-traps.

native rats and mice, have been here for many millions of years and closely parallel (in adaptation to our stringent ecological conditions) their relatives in similar places in other lands. Thus, we have tiny hopping-mice (*Notomys*), like miniature kangaroos, which are very similar in appearance and habits to the jumping-mice (Zapodidae) of the American and Eurasian dry-lands, and the jerboas (Dipodidae) of Africa; but it must be emphasised that the jumping specialisations of our own hopping-mice have evolved quite independently within Australia.

Some of our native placental mammals are economically important. Until 1963 a shore-based Western Australian fishery at Carnarvon depended upon the migrating groups of Hump-back Whales (*Megaptera novaeangliae*) which move along the western coast between their feeding grounds in Antarctic waters and their breeding places in the tropics. Unfortunately, immoderate exploitation of the stocks (especially the breeding stock) had so reduced the population that it was in danger of extermination and the shore-based fishery collapsed. Another whale fishery, at Albany, is dependent upon Sperm Whales (*Physeter macrocephalus*). The catching of Southern Fur-seals (*Arctocephalus doriferus*), formerly lucrative, is now no longer permitted. The Dugong (*Dugong dugon*) was once an important source of food for the natives of the coastline from Shark Bay to the Northern Territory. The Dingo (*Canis familiaris dingo*) has probably not been in Australia for as long as the other native mammals, and may well have entered with the first of the Australoid people who were ancestral to our present Aborigines. In some parts of the State the Dingo is a major problem to the pastoral industry because of its attacks on livestock.

The preceding table also shows that there is a large number of introduced species as well as native mammals. These are now a part of the wild mammal fauna of Western Australia and all are placentals. Some of these species are also agricultural and pastoral pests and they have become so well entrenched in the environment that there is no doubt that any discussion of the mammalian fauna of the State must take them into account and mention should be made of some of them here. Red Deer (*Cervus elephus*) occur spasmodically in the South-West around Pinjarra, Waroona and Harvey. Camels (*Camelus dromedarius*) occur in large numbers and are distributed through the Eastern Goldfields up through the Pilbara and into the Kimberley. They have been declared vermin around Laverton, Nullagine, Port Hedland, and Halls Creek. Donkeys (*Equus asinus*) have a distribution very much like that of the camel and also occur generally throughout the Kimberley. Wild goats (*Capra hircus*) are ubiquitous in dry country but are mainly concentrated in the Murchison and the North-West. A small herd of Black-buck (*Antilope cervicapra*) occurs near Geraldton. Rabbits (*Oryctolagus cuniculus*) are widespread in Western Australia but are only of economic significance south of the Murchison. They are by no means the problem that they used to be, due largely to programmes of intensive rabbit extermination. Foxes (*Vulpes vulpes*), declared vermin, are also widespread but do not commonly occur north of the De Grey River, having only been reported spasmodically from the Kimberley Division. The domestic cat run wild (*Felis catus*) occurs commonly in the bush and is an efficient predator on native fauna. It became feral in the early days of settlement and soon spread throughout the Colony. The naturalist Keartland while a member of the Calvert Scientific Exploring Expedition in 1896, recorded that ' in the desert of North-West Australia ' he saw a tabby cat at least 400 miles from the nearest house. Earlier still the ornithologist Tom Carter writing in 1887 from the Carnarvon district spoke of ' the domestic cat, which is found quite wild and of a large size all through the colony '.

Examination of the composition of the older mammal fauna of Western Australia, *i.e.* monotremes, marsupials, bats and native rodents, as set out in the following table, reveals that only one-eighth of all species recorded from the State today appear to occur only in Western Australia. The South-West contains by far the greatest number of endemic species.

ENDEMISM OF NATIVE MAMMALS TO WESTERN AUSTRALIA

(excluding marine mammals)

Group	All endemic and non-endemic species	Number of endemic species—			
		Total endemics	Endemics north of Fitzroy River	Endemics of South-West Land Division	Endemics of remainder of State
Monotremes	1	....	....	....	....
Native cats	23	5	1	2	2
Marsupial moles	1	....	....	....	....
Bandicoots	7	....	....	....	....
Possums	8	2	1	1	....
Wombats	1	....	....	....	....
Kangaroos and Wallabies	20	4	....	3	1
Rats	24	3	....	2	1
Bats	23	....	....	....	....
Dingo	1	....	....	....	....
Totals	109	14	2	8	4

Birds

The bird fauna of Western Australia consists of a selection of the species occurring in eastern Australia, with only a very minor development of endemic forms. All of these latter, except one (the Western Australian King Parrot, *Purpureicephalus spurius*), have a close and obvious affinity to other Australian forms. The quantitative relationship of the Western Australian bird fauna to that of Australia as a whole is indicated in the following table, which has been prepared on an ecological basis.

	Number of breeding species		Number of non-breeding visiting migratory species	
	Western Australia	Australia	Western Australia	Australia
Land birds	307	499	6	8
Inland water birds	51	52	33	42
Sea birds	25	38	33	55
Total	383	589	72	105

Representatives of most of the families and genera of Australian birds occur in this State. Notable absentees include the Cassowary (*Casuarius casuarius*), Brush Turkey (*Alectura lathami*), several of the fruit-pigeons, the Crimson Rosella (*Platycercus elegans*), Lyre-bird (*Menura novae-hollandiae*), several honeyeaters including the Regent (*Zanthomiza phrygia*), Apostle-bird (*Struthidea cinerea*), Cat-birds (*Ailuroedus*), Satin Bower-bird (*Ptilonorhynchus violaceus*) and Rifle-birds (*Ptiloris*).

Space is insufficient to detail all the forms occurring in Western Australia. Mention may be made only of some distinctive species and groups which are common and widely distributed.

The Emu (*Dromaius novae-hollandiae*) is still numerous all over the State and is occasionally encountered in the Darling Range near Perth. Australia's only breeding species of penguin, the Fairy Penguin (*Eudyptula minor*) nests on islands off the southern and south-western coasts as far north as Carnac near Fremantle. The Mallee-fowl or Gnow (*Leipoa ocellata*) is still plentiful and, after a period of decline during which its disappearance was feared, it is now increasing in abundance. All of the widespread

species of Australian quails occur but owing probably to the scarcity of natural grasses in the south are not individually very numerous. Among the pigeons two species have shown notable recoveries in population strength. After a long period of scarcity the Common Bronzewing (*Phaps chalcoptera*) began a cycle of increase about 1936 and is still very abundant. The rare Flock Pigeon (*Histriophaps histrionica*) of the more arid country of the North-West and the far North has declined all over Australia and had not been recorded in this State since 1927 until 1958 when considerable flocks were observed in the Hamersley Range and the Fortescue River country. It has also reappeared in parts of the Kimberley Division.

A very distinctive member of the rail family is the Black-tailed Native Hen or Gallinule (*Tribonyx ventralis*). It is a creature of the drier country but is subject to violent fluctuations in numbers, when it is liable to invade the South-West in great strength. A famous occasion was in May 1833 when it overran the settlers' fields and gardens around Perth and did considerable damage to the crops. Similar irruptions took place in 1853, 1886, 1897 and 1919. Later invasions, such as those in 1952 and 1964, have been on a much more modest scale. Of the three Australian grebes the most plentiful is the Hoary-headed Grebe (*Podiceps poliocephalus*) which assembles in the winter in big flocks on the southern estuaries, including that of the Swan River.

In the petrel group there are five breeding species in local waters. The most numerous is one of the mutton-birds, the Wedge-tailed Shearwater (*Puffinus pacificus*) which nests on most islands between Carnac in the south and Sable Island, in the Dampier Archipelago, in the north. A second mutton-bird, the Fleshy-footed Shearwater (*P. carneipes*) nests between Cape Leeuwin and the Archipelago of the Recherche; it is a migratory species and in the winter months migrates to the north-western sector of the Indian Ocean. A similar trans-equatorial migrant is the White-faced Storm-petrel (*Pelagodroma marina*), a diminutive form rarely observed at sea. It nests often in vast aggregations on islands off the south coast and as far north as the Abrolhos. All of these species nest in the spring and summer months. The remaining two breed in the winter. The Great-winged Petrel (*Pterodroma macroptera*) shares the nesting islands off the south coast with the Fleshy-footed Shearwater in a sort of ' Box and Cox ' relationship. The black and white Little Shearwater (*Puffinus assimilis*) has a wider nesting range, from the Recherche to as far north as the Abrolhos; in former times it nested at Parrakeet Island off Rottnest Island. In the winter months some twenty-two species of southern-breeding petrels visit local seas. They vary in size from the little Wilson Storm-petrel (*Oceanites oceanicus*), barely larger than a swallow, to the great Wandering Albatross (*Diomedea exulans*). The Wilson Storm-petrel ' winters ' all along the Western Australian coast to the tropics and is a familiar sight around fishing boats in Shark Bay. The most common of the albatrosses is the Yellow-nosed Albatross (*Diomedea chlororhynchos*) and may be seen as far north as Point Cloates. The most familiar of these visitors is the dusky Giant Petrel (*Macronectes giganteus*). Ringing experiments have demonstrated that the birds seen here are first-year individuals making circumpolar flights round the Southern Hemisphere; marked birds found in the South-West had been ringed a few months previously in their nests at Heard Island, Macquarie Island, and islands in the South Orkneys in the South Atlantic.

All of the five species of Australian cormorants or shags occur locally. Despite complaints of their depredations on commercially important fish, investigations have cleared the birds of blame, though one species, the Black Cormorant (*Phalacrocorax carbo*), specifically identical with the Cormorant of Europe, does occasionally include edible fish in its diet. One marine species, the Pied Cormorant (*P. varius*), which enters the Swan River estuary and Peel Inlet, is mainly responsible for the guano deposits on the coastal islands. Deposits at Shark Bay were commercially exploited in the last century and at one stage, in 1850, a detachment of troops was stationed at The Quoin Bluff, Dirk Hartogs Island, to ensure the collection of royalties. Pelicans in Western Australia, unlike those in eastern Australia, breed only on coastal islands and not on inland waters. Until recently the nearest breeding place to Perth, and presumably the origin of most of the Swan River Pelicans, was Pelican Island, Shark Bay. However, since 1962 a breeding colony has become established at Peel Inlet, Mandurah.

Fourteen species of terns are recorded for the southern parts of the State and three more for the Kimberley Division. Three of the seventeen are migrants from the Northern Hemisphere and ringed individuals of the European Common Tern (*Sterna hirundo*) and the Arctic Tern (*S. macrura*), marked in northern Europe, have been recovered near Fremantle. These birds must have reached our coast via the Cape of Good Hope. The Silver Gull (*Larus novae-hollandiae*) is noteworthy for having two breeding seasons in the southern part of the State. On the islands at Safety Bay, for example, there is an egg-laying peak in the autumn and another in the spring.

The numerous Order of wading or shore-birds (sandpipers, dotterels, and plovers) includes a few locally-breeding species but the majority are migrants from the Northern Hemisphere, where they breed in the tundra zone of northern Asia. Though they frequent ocean beaches and estuaries, as well as swamps and lakes, they are listed in the category of ' inland water birds ' in the table on page 69. Some twenty-five species of these birds, commonly called ' snipe ' (though the true Snipe of eastern Australia, *Gallinago hardwickii*, does not occur in this State) migrate to Western Australia. In addition there are sixteen species of this Order which breed in Australia. One of them, the Red-capped Dotterel (*Charadrius alexandrinus*), is virtually identical with the rare Kentish Plover of England. Here it is very common and nests at Pelican Point on the Swan River. Another local breeder is the remarkable Banded Stilt or Rottnest Snipe (*Cladorhynchus leucocephalus*) which is an attractive inhabitant of the salt lakes of Rottnest Island. However, it nests only on the inland salt lakes. The nesting habits remained long unknown until colonies were discovered at Lake Grace and Lake King in 1930.

The Australian Bustard (' Wild Turkey ', *Eupodotis australis*) is a magnificent bird which has been largely exterminated by shooters over much of south-eastern Australia and in the developed South-West of this State. It is not uncommon in sparsely-settled areas and individuals occasionally appear on the open coastal country quite near Perth. It has recently been demonstrated by ringing that the Straw-necked Ibis ranges between south-western Australia and northern and eastern Australia. Fledglings marked in the nests at Muchea have later been taken in the North-West, the Kimberley Division, Arnhem Land and near Orange (New South Wales).

The Brolga (*Grus rubicunda*) is a northern bird normally found as far south as Onslow, but some individuals may wander into the outer parts of the South-West as occurred in 1952. In the heron family a new bird has been added to the State list—the Cattle Egret (*Bubulcus ibis*), which appears to have colonised northern Australia from Indonesia and has now spread over much of eastern and Western Australia.

There are eighteen species of swans and ducks occurring in the State, one of the most remarkable, perhaps, being the Cape Barren Goose, which is now restricted to the islands of the Recherche Archipelago. Recent leg-ringing experiments have shown that the common and widespread Grey Teal (*Anas gibberifrons*) wanders indiscriminately all over Australia, its movements being influenced by availability of surface waters.

The State is also well provided with hawks and eagles, twenty-four species being found within its limits. Most are harmless economically and the few that do take chickens and lambs are not serious depredators, though there is controversy on the role of the Wedge-tailed Eagle (*Aquila audax*) which is, however, classified by the Agriculture Protection Board as vermin in certain districts in the central and north-west portions of the State.

There are not as many species of the parrot group in Western Australia as there are in eastern Australia but one species, the Western Australian King Parrot or Red-capped Parrot (*Purpureicephalus spurius*), is restricted to the South-West and has no near relatives elsewhere. The Twentyeight Parrot is a form of the Port Lincoln Parrot (*Barnardius zonarius*) and is common almost everywhere, being regularly present in King's Park, a natural reserve adjacent to the City of Perth.

The Kookaburra (*Dacelo gigas*), so common in the forests of the South-West, is not a Western Australian native but was introduced from eastern Australia by the Acclimatisation Board during January 1897. A similar species, however, the Blue-winged Kooka-

burra (*D. leachii*) occurs in the north, as far south as the Wooramel River. The Rainbow-bird (*Merops ornatus*) in the south is a strict migrant, arriving regularly in the first week in October. Local birds migrate to the north of the State, the wintering area being from the Gascoyne River northward, but some individuals cross the Timor Sea to the Indonesian islands. There are eleven cuckoo species in our area, the commonest being the Pallid Cuckoo (*Cuculus pallidus*) whose plaintive insistent note is heard soon after the winter rains set in.

In the great group of passerines, or song-birds (Order Passeriformes), the most celebrated is the Noisy Scrub-bird (*Atrichornis clamosus*), a primitive almost-flightless bird which until recently was believed to be the only Australian bird which had become extinct since white settlement. The last specimen was collected by the ornithologist A. J. Campbell at Torbay in 1889, but late in 1961 a surviving population was discovered at Two Peoples Bay east of Albany. Space is insufficient to deal in any detail with other members of this large Order. Throughout the State there are 172 species, of which 95 occur in the southern, settled parts and at least 33 are found in King's Park. A distinctive robin, the White-breasted Robin (*Eopsaltria georgiana*), occurs in the South-West. It is a relative of the yellow robins and is found in the dense coastal and forest thickets from Geraldton southward and east to Albany and the Porongurups. The Western Warbler (*Gerygone fusca*) is a sweet-voiced songster which may be heard in the street trees of Perth, the only Australian capital city in which it lives; in the other States the bird is an inland species. Another distinction of the Perth metropolitan area is that four species of blue-wren, a greater number of species than in the environs of any other capital city, have been noted there. One species, the Red-winged Wren (*Malurus elegans*), which used to live near the city, disappeared when Herdsman Lake was drained. The remaining species are the Splendid Wren (*Malurus splendens*), occasionally still seen in the University grounds; the Blue-and-white Wren (*Malurus leuconotus*) in the coastal dune scrubs, and the Causeway and Pelican Point samphire flats; and the Variegated Wren (*Malurus lamberti*) in the dune thickets. Honeyeaters are numerous, the largest, the Red Wattle-bird (*Anthochaera carunculata*), being a familiar bird in metropolitan streets and gardens. Most of the grassfinches are restricted to the Kimberley Division, where ten species are found. However, one of them, the widespread Zebra Finch (*Taeniopygia castanotis*), nests as near to Perth as Northam and York. Two bower-birds occur in the State. The Great Bower-bird (*Chlamydera nuchalis*) is confined to the Kimberley Division, but the Spotted Bower-bird (*C. maculata*) is found in the North-West and ranges south to the East Murchison country and Malcolm in the Eastern Goldfields.

In contrast with all other Australian States there are very few species of exotic birds established in Western Australia. (The same is true of the Northern Territory.) In the towns of the South-West two turtledoves are plentiful, the Indian (*Streptopelia chinensis*) and the Senegal (*S. senegalensis*). The Goldfinch (*Carduelis carduelis*), an escapee from aviaries, breeds freely in the Perth metropolitan area and around Albany. Recently another cage-bird escapee, the Red-browed Finch (*Aegintha temporalis*), an eastern Australian species, has established itself east of Kalamunda in the Darling Range near Perth. The Indian or Ceylon Crow (*Corvus splendens*) repeatedly arrives at Fremantle on ships from the Orient but the vigilance of officers of the Department of Agriculture and port officials has led to the successful eradication of the unwanted immigrants. The House Sparrow (*Passer domesticus*) has been similarly kept at bay at Fremantle. This species did, however, make a temporary colonisation, from South Australia, in the vicinity of Eucla and Mundrabilla in 1917-18 but it failed to make any headway and disappeared from that sector.

Reptiles

In Western Australia the reptiles are represented by three major zoological groups or Orders. These are the Chelonia (four marine species of turtles and six of freshwater tortoises), Crocodilia (two of crocodiles) and the Squamata (sixty-two species of snakes and 159 of lizards).

The freshwater tortoises of Western Australia, like those of the rest of the continent, belong to the ancient group of side-necked tortoises. In most other parts of the world tortoises retract their heads straight backwards bending their necks in a vertical S-shaped curve. Australian tortoises, and certain others from South America, bend their necks sideways; this is believed to be an ancient character. Although the species of Western Australian tortoises are few, they are of great interest and their distributions are far from well understood. This is especially true of the species inhabiting the Kimberley. Freshwater tortoises do not seem to fall into simple faunal zone classifications. The common species of the South-West, *Chelodina oblonga*, is probably specifically different from a rather similar species in the Kimberley. The common species of eastern and central Australia, *Emydura macquarii*, occurs in the Kimberley Division in a slightly more globose form which has been called *Emydura australis* but it is not represented in the South-West. The river systems from the Irwin, in the Northern Agricultural Division to the De Grey in the northern Pilbara, have their own tortoise (*Chelodina steindachneri*), while a highly specialised short-necked tortoise (*Pseudemydura umbrina*) is apparently confined to a few square miles of winter swamps between Upper Swan and Bullsbrook to the north of Perth. Because of its vulnerability to extinction this last species is rigidly protected.

Marine chelonians also occur in large numbers around the coasts. The Green Turtle (*Chelonia mydas*), the species which is used for soup making, comes ashore to lay its eggs on the northern beaches. Attempts are made from time to time to exploit this species commercially, but no permanent industry has been successfully established.

There are two species of crocodiles in Western Australia. One is the harmless fish-eating Freshwater Crocodile (*Crocodylus johnstoni*) and the other the dangerous Salt-water or Estuarine Crocodile (*C. porosus*). The former is protected by law, while the latter forms the basis of a lucrative trade in hides. Both species are confined to northern parts of the State.

Snakes and lizards are common and widespread throughout the State, and in numbers of obvious individuals they are probably surpassed among the vertebrates only by the birds. In the South-West, Bobtails (*Trachysaurus rugosus*) can often be seen crossing the roads at most times of the year, while the walker among coastal sand dunes on warm days cannot avoid noticing innumerable small dragon-lizards which move away from in front of him. In the southern part of the State the largest lizard which is at all common is the Goanna (*Varanus gouldi*). These are frequently between three and four feet in length. In northern areas the Bungarra (*Varanus giganteus*) exceeds it in size. A few species are confined to the South-West and of these the most interesting are Mueller's Snake (*Rhinohoplocephalus bicolor*), the Little Brown Snake (*Elapognathus minor*), the Black Striped Snake (*Vermicella calonota*) and the Slender Snake Lizard (*Pletholax gracilis*) which is also one of our rarest species of lizard. An Eyrean species which never ceases to surprise the visitor is the terrible-looking Mountain Devil (*Moloch horridus*). This lizard is actually one of the most gentle and harmless of animals and lives exclusively on ants.

The snake fauna of the State is diverse and, like that of other parts of Australia, contains many venomous species, the best known being the Tiger Snake (*Notechis scutatus*), the Dugite (*Demansia affinis*), the Gwardar (*D. nuchalis*), the Death Adders (*Acanthophis antarcticus* and *A. pyrrhus*) and the Mulga Snake (*Pseudechis australis*).

The snakes and lizards are well described in Glauert's *Handbook of the Snakes of Western Australia* and *Handbook of the Lizards of Western Australia* (see bibliography at the end of this Part).

Because of the great distance of the Kimberley Division from centres of scientific research, insufficient is known of its snakes and lizards. As in the case of some of the smaller mammals, some endemic species of lizards have been described, but until much more scientific collecting and research has been done it will not be possible to evaluate such apparently-unique species. Some Kimberley species of lizard, *e.g.* the Frilled Lizard (*Chlamydosaurus kingi*), through being commonly illustrated in journals because of their bizarre appearance, have become familiar to the public.

Amphibia[4]

Unlike the other continents Australia has no newts or salamanders (Urodela) or worm-like gymnophionans (Apoda). However, frogs (Anura) are abundant.

The frogs of Western Australia fall into the same grouping (Bassian, Eyrean and Torresian) which was mentioned in the section on mammals. However, they lack the diversity of genera and species shown by other groups and only ten genera with about thirty species are known from south of the Tropic of Capricorn. Of these, two genera, *Metacrinia* and *Myobatrachus*, each with one species, are restricted to the South-West. Most of the other kinds of frogs are distinct from, but related to, species found elsewhere in Australia.

Since most of Western Australia is exceedingly dry it is of interest to note that frogs are common in these arid regions. Those species of *Heleioporus* which occupy marginal-desert habitats overcome drought conditions by burrowing into the damp sub-soil. However, the arid-country species of *Neobatrachus* frequent clay soil where deep burrows are impossible and water can be lost. These species show no special capacity to endure greater water loss than *Heleioporus* species, but they do display an exceptional capacity for rapid replacement of water when water is present, as for example after thunderstorms. The water-holding frog, *Cyclorana platycephalus*, is found in inland and northern parts of the State. All ' desert ' species retain an aquatic larval life, but this is much shorter than that of species in the well-watered parts of the State. The only species lacking aquatic larval development occur in the wetter South-West; these are *Myobatrachus gouldii*, *Metacrinia nichollsi* and *Crinia rosea*. *Myobatrachus gouldii* is the only species which exhibits any strong dietary preference and eats only termites (Isoptera).

Freshwater Fishes

The truly freshwater fish fauna of the southern part of the State is, by eastern Australian standards, an impoverished one and the species, with the exception of the freshwater catfish (' cobbler '), are diminutive in size. Most of the species are representatives of eastern Australian genera, such as the Pygmy Perch (*Nannoperca vittata*), Mountain Trout (*Galaxias truttaceus*), Black-striped Minnow (*G. pusillus*), and the Native Minnow (*G. occidentalis*). Others are more distinctive, with no near relatives in eastern Australia, such as the Nightfish (*Bostockia porosa*), the King River Perchlet (*Nannatherina balstoni*) and the newly-described scaled galaxiid (*Lepidogalaxias salamandroides*). There are several gobies (*Glossogobius supposítus* and *Lizagobius olorum*) and Hardyheads (including *Atherinosoma edelensis*, *A. rockinghamensis*, *A. elongata* and *Craterocephalus cuneiceps*). A lamprey (*Geotria australis*) ascends the rivers to breed and has been recorded north to the Swan River system, but is more abundant in the streams emptying on the south coast. An eel (*Anguilla australis*) has been recorded from the South-West but it is not known whether it is native to the area or has been introduced.

The north-western rivers have a richer fish fauna. The most widespread is the Spangled Perch (*Therapon unicolor*), a useful food fish which occurs in all rivers south to the Murchison. A large catfish (*Arius australis*) reaching 5 lb in weight, occurs in the systems south to the Fortescue. The Rainbow Fish (*Melanotaenia*), popular with aquarists occurs in the river systems of the Pilbara and the Kimberley. The remarkable Blind Gudgeon (*Milyeringa veritas*) and blind eel (*Anommatophasma candidum*) occur in wells and subterranean channels in the North West Cape area. The Kimberley Division has an even larger series of freshwater fishes. These include a catfish (*Neosilurus brevidorsalis*), various Bony Bream (*Fluvialosa*), various perch-like fishes (*Therapon*, *Acanthoperca*), Gudgeons (*Carrassiops*) and two freshwater saw-fishes (*Pristis clavata* and *Pristiopsis leichhardti*). There is also a freshwater eel (*Anquilla bicolor*) in these far northern waters.

Marine Fishes[5]

The marine fish fauna of Western Australia is probably richer in species than that of any other Australian State. This is because the fish of the northern part of the State's very long coastline belong to the rich tropical Indo-Pacific fauna, while its southern fauna

(4) Written in collaboration with Prof. A. R. Main. (5) Contributed by Dr G. F. Mees.

is a temperate one which includes many elements peculiar to Australian waters. The most up-to-date list of the species of Western Australian fish, published in 1948, enumerates 740 species, but since that time collecting has revealed about 120 more. Even so, this figure is still far short of the total number which, it is suspected, will eventually be found to be in the neighbourhood of 2,000.

From this it can be seen that there is much to be learnt about fish of Western Australia but it is probable that only a few of these species are confined to Western Australian waters. At present it seems that most of the fish occurring in the tropical part of the State are widely distributed, and species often range throughout the whole of the tropical Indian and Pacific Oceans, while the species which are found along the south coast usually occur also in the waters of South Australia, Victoria, Tasmania and southern New South Wales.

Between Cape Leeuwin and Shark Bay both northern and southern elements are found, the tropical element dominating as far south as the Houtman Abrolhos.

In addition to the widely-distributed tropical and southern elements, there are a number of species, between thirty and forty, which seem to be peculiar to Western Australia. It is necessary to be cautious here for two reasons. Firstly because the Indo-Pacific fish fauna is, as a whole, poorly known and some fish, at present only recorded from Western Australia, may actually have wider ranges. Secondly, our classification of fishes is still imperfect so that fishes which we regard as endemic to Western Australia may be known from some other region, but under different names. On the other hand there can be no doubt that at least a proportion of these species which we now believe to be endemic will prove to be confined to Western Australian waters.

In the following very incomplete review, a number of the more important and interesting families and species are listed.

Of the major groups, the Elasmobranchii (sharks and rays) are richly represented, with nearly eighty species, of which the most familiar are the Port Jackson Shark (*Heterodontus portusjacksoni*), the Carpet Shark or Wobbegong (*Orectolobus maculatus*) and the shark known locally as the Swan River Whaler (*Carcharhinus*), which can be caught in the Swan River as far upstream as the Causeway. Its specific identity has not yet been established beyond doubt, but it is probably widely distributed. The foregoing species are regarded as harmless to man; of the dangerous species, the Tiger, the Whaler and the White Pointer are perhaps the best known. Four fatalities from shark attack have been recorded for Western Australia (in 1803, 1923, 1925 and 1967) and a few people are known to have been maimed. It may be said, however, that in Western Australia the danger of shark attack is low.

Most major families of bony fishes are represented, but only a number of the more interesting or familiar species can be mentioned here.

There are about ten species of true herring (Clupeidae), one of which, the Pilchard (*Sardinops neopilchardus*) will in future probably become of economic importance. The rather similar-looking *Amblygaster postera* seems to be confined to Western Australia. The State is particularly rich in sea-horses and pipe fishes, there being some twenty-five species. The most familiar of these is perhaps the leafy sea-horse (*Phyllopteryx foliatus*) which is often found on the beaches after storms. The so-called Sand Shark or Rat Fish (*Gonorhynchus greyi*), a peculiar fish and the sole representative of its family, deserves mention; it is fairly common off sandy coasts of the South-West. Though eels are represented by several families and over twenty species, only three are common in the South-West; the Snake Eel (*Ophisurus serpens*), a slender golden brown eel inhabiting sandy estuaries, which is often taken for a snake and referred to as the water snake; Woodward's Eel (*Gymnothorax woodwardi*), found on rocky shores, yellowish green with a network of grey lines; and the Conger Eel (*Conger wilsoni*), which normally is dark brown in colour.

Garfishes (Hemiramphidae) are common. Of their relatives the Long Toms (Belonidae), only *Belone ciconia* is common in the South-West the others being more tropical in distribution, though one of the northern species, *Belone hians*, has been found as far south as Rottnest Island.

Silversides and hardyheads (Atherinidae) are well represented and so are mullets (Mugilidae). Some representatives of these groups have been mentioned in the preceding section, which deals with freshwater fishes.

The family Serranidae, known as gropers, rock cod, etc. are well represented by nearly thirty species. The best known is the North-west Groper (*Epinephelus tauvina*) which attains a length of more than seven feet. Most species have a very wide, mainly tropical, distribution, but *Epinephelus rankini* is only known from a restricted area round Onslow and must be looked upon as endemic to Western Australia. In temperate waters the preceding family is more or less replaced by the related Hypoplectrodidae.

Some small families, like the Australian Salmon (Arripidae), Whiting (Sillaginidae) and Snappers (Sparidae) are of great economic importance, though there are only a few species. On the other hand the Skipjacks (Carangidae) are the largest family of the State and comprise some thirty species. Another group which are also called Snappers (Lutjanidae) is prominent in the tropical part of the State. These are often referred to as North-west Snappers and should not be confused with the southern Snapper (*Chrysophrys unicolor*) which belongs to the Sparidae.

Coral fishes (Chaetodontidae) are richly represented, mainly along reefs in the tropics, but a number of species come down to the Albrolhos Islands, and some even near to Perth. Most species have a very wide distribution in the Indo-Pacific, but one, *Chaetodon assarius*, has not been found outside Western Australia.

The Mackerel family (Scombridae), which includes mackerel, Spanish mackerel, tuna, bonito and albacore, is important both in tropical and temperate waters. The related marlins and swordfishes, well known to sporting fishermen, also occur in these waters.

Flatfishes (Heterosomata) occur in a great variety of species, and the same can be said of Parrotfishes and Wrasses (Scaridae and Labridae). All these groups are as yet very insufficiently known.

The stargazers and stonelifters are sluggish bottom fishes that deserve mention because of their unusual shape. One, *Ichthyscopus barbatus*, occurs off the south-west coast and also in South Australia, and is regularly caught by anglers. Another species, *Ichthyscopus insperatus*, a common fish of the north-west coast from Broome to Shark Bay, seems to be confined to Western Australia. The dragonets (Callionymidae), of which nine species have been recorded, are smaller, but their pretty appearance attracts attention, and one species, *Dactylopus dactylopus*, widely distributed in the Indo-Pacific, is regularly found off sandy beaches as far south as Rockingham.

Blennies (Blenniidae), weedfish (Clinidae), and gobies (Gobiidae) are small fishes of which there are many species; blennies are most plentiful in rockpools and on reefs in the tropics, while gobies are also found on sandy bottoms.

There are some twenty species of scorpion fishes known from the State, the most familiar of which are *Scorpaena sumptuosa* in the south, and the small *Scorpaena bynoensis* in the north; the first-mentioned species is also interesting in that, though it has been known for almost a century, it has never been recorded from outside Western Australia. Of the closely-related Synancejidae, the feared stone fish, three species are known from the State, one of which, *Erosa daruma*, is apparently restricted to the North-West and is known from but two specimens. A related species occurs in Queensland and Japan.

Flatheads (Platycephalidae) are common in the temperate part of the State.

An interesting family is that of the angler fishes or toad fishes (Antennariidae). Their curious shape with the leg-like pectoral fins always excites attention. There are about a dozen species, two of which are endemic to the State. One of these is *Echinophryne glauerti* which is occasionally found washed up on City Beach.

Leatherjackets (Monacanthidae) are a large group distinguished by the rough leathery skin and a single large erectile spine on the nape. Some species, like *Chaetoderma penicilligera*, are common and of attractive appearance.

Of the blowfish family, the common Blowie (*Tetraodon* (*Spheroides*) *pleurogramma*) needs special mention; it is extremely plentiful off the coast at Fremantle and in the Swan River estuary. It is poisonous to eat and is greatly disliked by anglers who find that it greedily takes their bait. Fishes of this family contain a poisonous substance called Tetraodontoxin and the celebrated navigator Captain James Cook was very ill after eating a blowfish in the course of a voyage in the Pacific in 1774. Boxfishes (Ostraciontidae) and porcupine fishes (Diodontidae) are related groups, each represented by a number of species.

Further information about the commercial fishes in Western Australian waters is given in the Fisheries section of Chapter VIII, Part 1—*Primary Production* where the principal species of edible fish are listed together with the quantities of each species caught. The section also contains additional information relating to whaling (see *Mammals* earlier in this Part).

THE INVERTEBRATE FAUNA[6]

The invertebrate fauna of Western Australia is large and varied, as one would expect in a third of a continent which extends from temperate to tropical zones and includes both coastal and desert areas. Rather than spread our descriptions too thinly over this enormous field we have restricted ourselves to a brief summary of the position in relation to a few selected groups in which work is being actively carried out.

Several invertebrate species are commercially exploited here, the most important being the marine crayfish or rock lobster (*Panulirus cygnus*) which supports an extensive export fishery. Others commercially important include several species of octopus and squid, the Blue Swimming Crab (' Blue Manna ', *Portunus pelagicus*) and several species of prawns. Pearl-shell was fairly extensively fished along the north-west coast but this fishery has now declined.

A summary of the terrestrial and freshwater invertebrate fauna and their ecology is given in Main's *Guide for Naturalists* (1968).

Echinodermata

The echinoderms of Western Australia have been shown by Clark (1946) to be derived from the Indo-Malayan fauna. Most species of northern Australia are widely distributed in the Indian Ocean and Malayan archipelago, while as one passes southward these decrease in proportion to the endemic species until on the south-western coast nearly nine-tenths of the echinoderms are endemic to the region.

All five groups of echinoderms, feather stars (Crinoidea), sea stars (Asteroidea), brittle stars (Ophiuroidea), sea urchins (Echinoidea), and sea cucumbers (Holothuroidea) are well represented. Eighty-five species of sea stars and fifty-five species of sea urchins are recorded from Western Australia including the continental shelf. The other groups have smaller numbers of species.

On the rocky and sandy shores of the South-West about twenty species of sea stars are common in shallow water. One of the most abundant is *Coscinasterias calamaria* which is widely distributed in the Southern Hemisphere. Sea urchins are represented by about twelve common species; on rocky shores the most abundant of these is *Heliocidaris erythrogramma* which has a southern Australian distribution.

In Cockburn Sound, between Garden Island and the mainland south of Fremantle, an abundant but specialised echinoderm fauna exists. This consists mainly of the small sea urchin (*Temnopleurus michaelseni*), the biscuit urchin (*Peronella lesueuri*), the heart urchin (*Echinocardium cordatum*) and the sea star (*Stellaster inspinosus*). On the south coast, King George Sound has long been known as a rich collecting ground for echinoderms, but the fauna of other bays and inlets is much less well known.

(6) Written with assistance from Drs R. W. George, E. P. Hodgkin, Barbara Y. Main and B. R. Wilson, and Mrs L. Marsh.

Little is known of the echinoderm fauna of the northern coasts, and almost all that we do know comes from the publications of H. L. Clark (see bibliography at the end of this Part) who collected extensively in the Broome area and made smaller collections in other places. Near Broome, a wide variety of echinoderms was collected in his dredges and along the shore.

Mollusca

The molluscan fauna of the Western Australian coastline has not been recently catalogued, but from the area within thirty-five miles of Fremantle 270 species of bivalves (Pelecypoda), and univalves (Gastropoda) are recorded. The smaller groups, chitons (Amphineura), octopus and cuttlefish (Cephalopoda) and tusk shells (Scaphopoda) are also represented.

Molluscs dominate the intertidal rocks of the west coast, especially chitons, periwinkles, and limpets; the limpets range from the very large *Patellanax laticostata* to the small *Notoacmea onychitis*. On the north-western coast, rock oysters (*Crassostrea tuberculata*) and barnacles take the place of limpets intertidally. The oysters are fished commercially for food on a small scale in places where extensive beds are uncovered at low tide.

Bivalves occur mainly on sandy and muddy bottoms such as those of Cockburn Sound and King George Sound, and along the north-western coast. They are less plentiful on the unstable sandy shores of the open western coast. The pearl-shell fishery of north-west Australia is based on several species, mainly the Black-lipped Pearl-shell (*Pinctada margaritifera*) and the Silver-lip (*P. maxima*). The Shark Bay Pearl-shell (*P. carchariarium*) is abundant in Shark Bay and has been fished there commercially. Commercial beds of the scallop *Amusium balloti* and the mussel *Mytilus edulis planulatus* also occur in Western Australian waters but only sporadic, small-scale attempts to exploit them have been made.

Many species of cowrie shells occur on the rocky shores of the north-west coast while a few species such as *Zoila friendii* and *Austrocyprea reevei* are confined to the south-western corner of the State. The north-west coast also has many endemic species of volute shells such as *Volutoconus hargraevsi*, *Amoria macandrewi* and *Cymbiola nivosa.*

Two kinds of gastropods without visible shells are conspicuous members of the marine fauna off Fremantle. One is the large sea-hare (*Aplysia gigantea*) with a small internal shell; it may be cast up on the beaches in large numbers after winter storms. The other is a nudibranch, with no shell at all, the colourful *Glossodoris westraliensis*, well known to visitors to Rottnest Island.

Coelenterata

This group includes the corals (Anthozoa), the hydroids (Hydrozoa) and jellyfish (Scyphozoa).

Reef-building corals occur on the north-western coast in abundance and form reefs as far south as the Abrolhos Islands (29°S.), and Port Gregory (28°S.) on the mainland. Further south, reef-building corals are few in number and occur as small reefs and as scattered colonies on islands off the coast, but not on the coast itself. The staghorn coral *Acropora* is plentiful around the Abrolhos Islands and at Port Gregory but it has not been found further south except in Pleistocene fossil beds on Rottnest Island. Two or three species of corals extend east of Albany, and one, *Plesiastrea urvillei*, occurs right along the south coast of Australia.

Soft-corals are abundant on the muddy reefs of much of the north-west coast but few species occur on the west coast. The brightly-coloured fan coral *Mopsella* is common on rocky reefs of the west and south coasts.

Jellyfish of a few species, such as the white *Aurelia aurita* and the brown *Phyllorhiza punctata*, are common in the Swan River in summer. *Carybdea*, the small ' sea-wasp ', occurs on the open coast.

Crustacea

The most important commercial species of crustacean in Western Australian marine waters is the rock lobster or ' Cray ', *Panulirus cygnus*. It occurs from North West Cape in the north to Hamelin Bay in the south. In the tropics five additional species of *Panulirus* occur; these are collectively referred to as 'Green Crays ' (*Panulirus versicolor, P. ornatus, P. homarus, P. penicillatus and P. polyphagus*). On the southern coast occurs *Jasus novaehollandiae*, which is the commercial species of rock lobster (crayfish) in south-eastern Australia, but it is not of economic importance in this State.

The Swan River Prawn or School Prawn (*Metapenaeus dalli*) occurs on the west coast of this State and extends into Indonesian waters. In Exmouth Gulf and in Shark Bay two species of tropical prawns are caught commercially. These are the Tiger Prawn (*Penaeus esculentus*) and the Banana Prawn (*Penaeus merguiensis*). The Western King Prawn of the south is *P. latisulcatus*.

The Blue Swimming Crab (*Portunus pelagicus*), plentiful in the summer in the estuaries of the Swan River and at Mandurah, is one of the common commercial crabs of Australia.

Two common species of crab are the Rock Crab (*Leptograpsus variegatus*) and the Ghost Crab (*Ocypode convexa*). The Rock Crab scrambles among rocks and jetty piles of the west and south coasts, whereas the Ghost Crab digs near-vertical burrows at the edge of the beach and is endemic to the west coast.

Of the many other species of non-commercial crustaceans some groups have been recently monographed by scientific workers. These are the swimming crabs, mantis shrimps and pebble crabs.

Crustacea are also common in inland waters (see *Fauna of Inland Waters* earlier in this Part).

Spiders

Like most other invertebrate groups, the spiders are represented by a large number of genera and species and it is not possible at this stage to give an accurate picture of the relationships of the Western Australian fauna to the rest of Australia. Early work on the Western Australian spiders was restricted to the description and naming of species. Research now is centred on investigations of the biology of various species and the special adaptations of endemic forms to the particular conditions of the Western Australian environment. The most interesting of the spiders, when viewed from this aspect, are the burrowing groups, including primarily the Mygalomorphae (' trapdoor ' spiders) and the Lycosidae (Wolf spiders). Some of these forms show special adaptations to semi-arid environments, to reduced food supply, and to flash-flooding, such adaptations being paralleled in many taxonomically unrelated genera. It is also of interest that some families, which in other parts of the world and in the wet forests of Australia are primarily web weavers and litter dwellers, are burrowers in the arid parts of Western Australia (and also in other dry parts of Australia). Such forms are essentially nocturnal and escape the unfavourable conditions of the day by remaining in their burrows and some species seal their burrows during the summer period.

Insects

The more important insect species occurring in Western Australia (particularly those of economic significance) are dealt with in Part 5 of this Chapter.

CONSERVATION OF THE FAUNA

In recent years the need to conserve the Western Australian fauna has received considerable publicity—this need has certainly never been greater than it is at present. In this State where new land is being brought into production for agriculture and the pastoral industry at a rate of approximately 1 million acres a year, and where the ever-increasing tempo of industrialisation and mining activity is obvious to all through its effect in increased population, the position of the native fauna is serious. This is because human

introductions such as sheep and cattle, as well as the more direct effect of the plough and the scrub roller, is radically changing the environment, but also because an increase in human population has meant a higher level of utilisation of wild stocks such as ducks (which form a basis for sport), kangaroos (which form a basis for a lucrative trade in pet meat and hides), and crayfish (which support the most valuable single Australian fishery).

From the early days of settlement in Western Australia, legal provisions were in existence under which land could be reserved but, in early years it was not realised that the preservation of habitat is basic to conservation and that protection of individuals against killing is of insignificant value except in specialised cases (see below). In the early days, protection was afforded to some game animals, such as kangaroos, to prevent them from being shot out, but it was not until land development became widespread in the South-West that the first real attempt was made to set aside a large permanent native fauna and flora reserve. This was in 1894 when 160,000 acres were gazetted between Pinjarra, North Dandalup and the Bannister. Unfortunately, this reserve later became alienated.

From this early attempt at habitat conservation has grown a very conscious need for extensive reserves carefully sited and selected in order to provide security for a representative sample of all the major habitats throughout the State. In 1959, a committee of the Australian Academy of Science produced such a plan for Western Australia and this plan has provided in subsequent years the basis for a policy of land acquisition for this purpose by the two major bodies who control land for conservation, *i.e.* the National Parks Board and The Western Australian Wild Life Authority.

Outside the reserves, fauna gains its protection through the Fauna Conservation Act. This Act replaced an earlier Game Act of 1912-1913 which had the rather different primary purpose of providing some measure of protection for those species of native fauna shot or hunted for sport. Under the Fauna Conservation Act, all native vertebrate terrestrial fauna, except those species declared vermin or declared otherwise unprotected, are protected against being taken, hunted, or confined. Owing to the very complex relationship between many species and their environment, such protective legislation has only a very limited long-term conservative effect in areas of closer settlement or intensive agriculture. On the other hand, in pastoral and forest areas, and in unalienated crown land not in fauna reserves, the legislation is much more valuable. The most important achievement of such protective legislation, however, is that it makes people conscious of the need to protect our native fauna and it is very likely that this educational function is its main justification except:

(i) where animals occur on small islands or restricted places on the mainland in such numbers or in massed concentrations that they are vulnerable to destruction by man. Local examples are the Noisy Scrub-bird at Two Peoples Bay near Albany, sea birds in nesting concentrations on small islands, and island populations of mammals such as the Quokka on Rottnest or the various wallabies on Bernier and Dorre Islands in Shark Bay.

(ii) where they are killed in the mass for commercial purposes, *e.g.* Humpback Whales, Fur Seals, Kangaroos;

(iii) where they are killed for sport, *e.g.* the Bustard (Plains Turkey), ducks;

(iv) where they are taken in very large numbers for zoos, circuses, or aviculture, *e.g.* finches and parrots.

In addition to its protective role, the Fauna Conservation Act establishes The Western Australian Wild Life Authority which is responsible for:

(i) the initiation of conservation-oriented research in relation to the fauna;

(ii) the acquisition, control, planning and management of an adequate system of sanctuaries (*i.e.* land reserved partly or entirely for the purpose of fauna conservation) including the preparation and implementation of working plans for each area; and

(iii) advising the Minister for Fisheries and Fauna in relation to fauna conservation generally.





AUSTRALIAN GOSHAWK

(*Accipiter fasciatus*)

The Goshawk is the essence of fearlessness and bravery when tackling prey. This picture shows its nest at a height of sixty feet in a Marri tree near Perth. Three eggs, pale blue with small spots and blotches of brown, are usually laid and they hatch in thirty days. Almost invariably, the weakest of the chicks fails to survive.

Blocks by courtesy of BP

PAINTED SNIPE

(*Rostratula benghalensis*)

Reversing the usual order among birds, the female Painted Snipe is more beautifully plumaged than her mate (illustrated). Four umber, darkly-blotched eggs are laid in a nest prepared by the male who is left to incubate the eggs and care for the chicks. The nest is a collection of soft twigs placed around a scrape in the ground near the edge of a swamp.

In Western Australia today the only terrestrial native fauna subject to any marked degree of human predation are ducks, eagles, emus, kangaroos of three species (the Grey, the Red, and the Euro) and the dingo. Excepting for certain vermin species on which a bonus is payable, figures for the total annual number killed are not available (for the 12 months ended 30 June 1968 bonuses were paid on 5,555 dingoes, 16,046 emus, and 1,493 Wedge-tailed Eagles) and until they are, and details of population size and rate of stock recruitment are known, it will not be possible to say whether these species are in serious danger. At present, only the crudest methods (*i.e.* of observing abundance and then subjectively comparing this with previous experience) can be used to say whether it is necessary to apply protection to prevent a serious decline in numbers.

By contrast, the position of the marine fauna is very different. There, intensive work has been done on both fish and invertebrate stocks in past years and, although there has been some cause for alarm in connection with an apparently depleting crayfish stock, conservative measures have been developed, and there are very good grounds for belief that these have been successful. The great reduction of the population of Humpback Whales due to over predation is a matter of considerable shame—it illustrates well the dilemma of an industry which is faced with the alternative of a low level of fishing over an indefinite period, or a highly lucrative but short period of exploitation as though the stock were not capable of regeneration (a procedure akin to a mining operation). In the case of the whaling industry in Western Australia the position was complicated by the fact that the stock was hunted both by the shore-based Western Australian fishery and by the international pelagic fleets operating in the Antarctic.

At present, our greatest need is information upon which to base proper conservative measures. Protective legislation, no matter how effective it is in protecting individuals, must not be regarded as effective in conservation unless measures to protect the environment are also taken. As a result, the authors believe that the stages of work most urgent at present to conserve the Western Australian fauna are as follows.

(i) to complete the reservation of lands designated in the report of the Western Australian Sub-committee of the Australian Academy of Science.

(ii) recognising that these areas are designated upon the best available information as to habitat type, but not upon actual surveys of the fauna, the authors believe that the areas must now be given thorough biological surveys to ensure that populations of all Western Australian species of animals and plants are contained within them; and also to estimate, as far as possible, the sizes of the populations which they contain.

(iii) to get under way an increased amount of long-term work on the biology of species which are suspected to be vulnerable. Through this work their particular requirements will be discovered and an endeavour can then be made to ensure that the reserves contain these requirements.

(iv) to insist on proper monitoring for any annual crop taken from vermin or other species subject to human predation so that these populations can be maintained at the level consistent with the State's particular requirements, and yet to avoid their extermination.

In Western Australia, land development has not yet gone too far for the State to preserve a representative section of its fauna and flora for all time. The keys to this are habitat conservation, reserve management, and education in conservation thinking. Through these means, it will also be able to ensure that as much wild life as possible remains in altered environments as well. Indeed, if roadside verges, small township reserves and timber lots on farms are preserved, a surprisingly large number of native creatures will survive. The importance of these minor habitats, often regarded condescendingly by professional biologists who focus their attention on big reservations, cannot be sufficiently stressed. It is in these areas that the ordinary people and tourists gain an acquaintance with the native fauna and flora. Here man and animals will contrive to co-exist in intimate association with each other and so help to reinforce a popular sentiment for conservation.

FURTHER SOURCES OF INFORMATION ON THE WESTERN AUSTRALIAN FAUNA

Distribution

C.S.I.R.O. *The Australian Environment.* 2nd ed. Melbourne, 1950.

DAKIN, W. J. *Australian Seashores.* Sydney, 1952.

KEAST, A., CROCKER, R. L. and CHRISTIAN, C. S. (ed.). 'Biogeography and Ecology in Australia'. BODENHEIMER, F. S. and WEISBACH, W. W. (ed.). *Monographiae Biologicae*, vol. 8, The Hague, 1959.

MICHAELSEN, W. and HARTMEYER, R. *Die Fauna Sudwest-Australiens.* Jena, 1910-1911.

RIDE, W. D. L. 'On the past, present, and future of Australian Mammals'. *Aust. J. Sci.*, vol. 31, 1968, pp. 1-11.

SERVENTY, D. L. and WHITTELL, H. M. *Birds of Western Australia.* 4th ed. Perth, 1967.

SPENCER, BALDWIN (ed.). *Report on the Work of the Horn Expedition to Central Australia.* Part I, Summary. Melbourne, 1896.

Mammals

GLAUERT, L. 'The Development of our Knowledge of the Marsupials of Western Australia'. *J. Roy. Soc. W. Aust.*, vol. 34, 1950, pp. 115-34.

RIDE, W. D. L. *A Guide to the Native Mammals of Australia.* Oxford University Press, Melbourne, 1969.

RIDE, W. D. L. 'On the past, present, and future of Australian Mammals'. *Aust. J. Sci.*, vol. 31, 1968, pp. 1-11.

TROUGHTON, E. *Furred Animals of Australia.* 5th ed. Sydney, 1954.

WOOD JONES, F. *The Mammals of South Australia.* (Handbook of Flora and Fauna of South Australia), 1923.

Birds

MAYR, E. and SERVENTY, D. L. 'The Number of Australian Bird Species'. *Emu*, vol. 44, 1944, pp. 33-40.

SERVENTY, D. L. and WHITTELL, H. M. *Birds of Western Australia.* 4th ed. Perth, 1967.

SERVENTY, D. L. and WHITTELL, H. M. 'A Systematic List of the Birds of Western Australia'. *Special Publ. W. Aust. Mus.*, No. 1. Perth, 1948.

Reptiles

GLAUERT, L. *A Handbook of the Lizards of Western Australia.* (Published by the Western Australian Naturalists' Club). Perth, 1961.

GLAUERT, L. *A Handbook of the Snakes of Western Australia.* (Published by the Western Australian Naturalists' Club). 3rd ed. Perth, 1967.

Amphibians

MAIN, A. R. *Frogs of Southern Western Australia.* Handbook No. 8 of the Western Australian Naturalists' Club. Perth, 1965.

MAIN, A. R. *Key to the Frogs of South-Western Australia.* Handbook No. 3 of the Western Australian Naturalists' Club. Perth, 1954.

MAIN, A. R., LEE, A. K. and LITTLEJOHN, M. J. 'Evolution in Three Genera of Australian Frogs'. *Evolution*, vol. 12, 1958, pp. 224-33.

Fishes

MEES, G. F. 'Additions to the Fish Fauna of Western Australia'. Fisheries Department, Western Australia. *Fisheries Bull. W. Aust.*, No. 9, pt 1 (1959), pt 2 (1960), pt 3 (1962).

SCOTT, T. D. *The Marine and Freshwater Fishes of South Australia.* Adelaide, 1962.

WHITLEY, G. P. 'A List of the Fishes of Western Australia'. Fisheries Department, Western Australia. *Fisheries Bull. W. Aust.*, No. 2, 1948.

Echinoderms

CLARK, H. L. ' Echinoderms from Australia '. *Mem. Mus. Comp. Zool. Harvard*, vol. 55, 1938.

CLARK, H. L. *The Echinoderms of Australia.* Carnegie Institution of Washington, publication 556. Washington D.C., 1946.

Molluscs

HODGKIN, E. P. and others. *The Shelled Gastropoda of South-Western Australia.* Handbook No. 9 of the Western Australian Naturalists' Club. Perth, 1966.

Crustaceans

GEORGE, R. W. ' Description of *Panulirus cygnus* sp. nov., the Commercial Crayfish (or Spiny Lobster) of Western Australia '. *J. Roy. Soc. W. Aust.*, vol. 45, pt 4, 1962, pp. 100-10.

GEORGE, R. W. ' Tropical spiny lobsters, *Panulirus* spp., of Western Australia (and the Indo-West Pacific) '. *J. Roy. Soc. W. Aust.*, vol. 51, pt 2, 1968, pp. 33-8.

GEORGE, R. W. and MARY E. KNOTT. ' The Ocypode Ghost Crabs of Western Australia (Crustacea, Brachyura). *J. Roy. Soc. W. Aust.*, vol. 48, pt 1, 1965, pp. 15-21.

STEPHENSON, W. ' Some Interesting Stomatopoda—Mostly from Western Australia '. *J. Roy. Soc. W. Aust.*, vol. 45, pt 2, 1962, pp. 33-43.

STEPHENSON, W. and MCNEILL, F. ' The Australian Stomatopoda (Crustacea) in the Collections of the Australian Museum, with a Check List and Key to the known Australian Species '. *Rec. Aust. Mus.*, vol. XXIII, No. 5, 1955, pp. 239-65.

STEPHENSON, W. and others. ' The Australian Portunids (Crustacea; Portunidae) '. *Aust. J. Mar. Freshw. Res.*, vol. 8, pp. 312-68, 491-507, vol. 10, pp. 84-124, vol. 11, pp. 73-122, vol. 12, pp. 92-128.

TYNDALE-BISCOE, MARINA and GEORGE, R. W. ' The Oxystomata and Gymnopleura (Crustacea Brachyura) of Western Australia with descriptions of two new species from Western Australia and one from India '. *J. Roy. Soc. W. Aust.*, vol. 45, pt 3, 1962, pp. 65-96.

Spiders

MAIN, B. Y. ' The Biology of Aganippine Trapdoor Spiders (Mygalomorphae Cterizidae) '. *Australian Journal of Zoology*, vol. V, 1957, pp. 402-73.

MAIN, B. Y. *Spiders of Australia.* Jacaranda Press, Brisbane, 1964.

Insects

WATSON, J. A. L. *The Dragonflies (Odonata) of South-Western Australia.* Handbook No. 7 of the Western Australian Naturalists' Club. Perth, 1962.

General

The Journal of the Royal Society of Western Australia, vol. 1 (1915)-vol. 51 (1968).

MAIN, A. R. *A Guide for Naturalists.* Handbook No. 4 of the Western Australian Naturalists' Club. 2nd ed. Perth, 1968.

Records of the Western Australian Museum and Art Gallery, vol. 1, pts 1 (1910), 2 (1912) 3 (1914) and vol. 2, pt 1 (1939).

The Western Australian Naturalist, vol. 1 (1947)-vol. 10 (1968).

Conservation

MARSHALL, A. J. and others. *The Great Extermination.* Heinemann, Adelaide, 1966.

RIDE, W. D. L. *A Guide to the Native Mammals of Australia.* Oxford University Press, Melbourne, 1969.

RIDE, W. D. L. and others. *National Parks and Nature Reserves in Western Australia.* Government Printer, Perth, 1966.

SERVENTY, D. L. 'Fauna Conservation in Australia and in Australian-controlled New Guinea'. *Proc. Tenth Pacific Science Congress*, 1961, published 1963, pp. 212-27.

SERVENTY, D. L. 'The Menace of (Animal) Acclimatization'. *Emu*, vol. 36, 1937, pp. 189-96.

SERVENTY, D. L. 'Reflections on Bird Protection—the Neglect of Habitat Preservation'. *Emu*, vol. 40, 1940, pp. 153-8.

SERVENTY, V. *A Continent in Danger.* Andre Deutsch, London, 1966.

SERVENTY, V. 'The Requirements of a Conservation Programme'. *Fauna Bull. W. Aust.*, No. 1, 1956, pp. 5-8.

Special publications and *Viewpoint* series published by the Australian Conservation Foundation. Canberra, 1967- .

Chapter II—continued

Part 5—Entomology in Western Australia

With Particular Reference to Agriculture

Contributed by C. F. H. Jenkins, M.A.,
(Chief, Biological Services Division, Department of Agriculture)

The entomological field in Western Australia is so vast and the number of active workers on the subject so few that much still remains to be learned about the insects found in this State. A wide range of environmental conditions exists, from the tropical north to the temperate south, and the geographical isolation of the State has allowed the development of numerous endemic forms. As may be expected, the insect fauna of the Kimberley Division shows closer affinities with that of North Queensland than with the lower half of the State. The central desert, which reaches the coast to the south along the Great Australian Bight and to the north along the Eighty Mile Beach, forms an effective barrier discernible in the distribution of flora, mammals, insects and birds.

Owing to the limitations of space no attempt has been made to cover all the various insect orders which occur in the State, but the economic importance of various groups and their influence on major agricultural industries have been outlined, and some of the more outstanding forms of general interest have been mentioned. A section has been included dealing with the use of pesticides in Western Australia.

CLASS INSECTA (Insects)

Order Collembola (Springtails)

The springtails include the Lucerne Flea (*Sminthurus viridis*) which was introduced into this State from eastern Australia in about 1910. It has spread to almost all the clover-growing areas in the South-West and is a very serious pasture pest. Partial control is exercised by a predatory mite, *Bdellodes lapidaria.*

Order Odonata (Dragonflies and Damselflies)

These insects are predatory in both the immature and adult stages and are usually regarded as beneficial creatures. However, they sometimes injure vegetable seedlings by ovipositing into furrow-irrigated crops. This has occurred mainly at Carnarvon where surface water is scarce and where irrigated plants are presumably mistaken for aquatic vegetation.

In order to survive in the diverse climatic conditions which exist in Western Australia, some members of the dragonfly group have developed the ability to breed in highly saline waters and to take advantage of ephemeral inland pools.

Orders Orthoptera, Mantodea, Blattodea, Phasmatodea (Grasshoppers, Locusts, Mantids, Cockroaches, etc.)

The grasshoppers and locusts are represented by a large number of different species. The most important pest form is the Small Plague Grasshopper (*Austroicetes cruciata*). The normal habitat of this species lies roughly between the ten inch and the fifteen inch isohyets. For breeding it favours hard, bare soil and as extensive areas once utilised for wheat growing have now reverted to grazing, these uncultivated tracts periodically give rise to serious grasshopper swarms, which menace the adjacent wheat lands. The Australian Plague

Locust (*Chortoicetes terminifera*) so troublesome in other States occurs in Western Australia but rarely as a plague species. In the Kimberley the Yellow-winged Locust (*Gastrimargus musicus*), the Migratory Locust (*Locusta migratoria*) and the Spur-throated Locust (*Austracris guttulosa*) assume plague proportions, but in the southern agricultural districts they occur in the solitary phase only. The mantids (Mantidae) are represented by many different species. Their well-developed fore-limbs are admirably adapted for catching prey and, like their foliage-feeding relatives the phasmatids or leaf insects (Phasmatidae), their colouring harmonises remarkably with the sticks and leaves on which they rest. The cockroach fauna includes a large number of native species as well as several introduced forms. The commonest pest species is the cosmopolitan American Cockroach (*Periplaneta americana*). Some large and quite colourful forms occur in the inland regions with the genus *Polyzosteria* well represented.

Order Isoptera (Termites)

The so-called white ant is a serious pest in all parts of the State. Earth-dwelling types occur mainly, and among the most important species may be cited the large *Mastotermes darwiniensis* of the north and the widely distributed *Coptotermes acinaciformis*. The large mounds of the grass-eating *Nasutitermes triodiae* are characteristic of certain landscapes in the pastoral areas. Heavy annual losses are caused by termite damage and the use of such chemicals as dieldrin, aldrin, chlordane and creosote is recommended for the protection of timber structures.

Order Phthiraptera (Lice)

Indigenous species occur on birds and native mammals, and various introduced forms infest domestic poultry, horses, cattle and sheep.

Order Thysanoptera (Thrips)

This order is represented locally by a large number of native species as well as several introduced forms. The most serious native species is *Thrips imaginis* which may swarm in apple blossoms and seriously affect the crop setting.

Thrips tabaci, often called the Tobacco or Onion Thrips, is a carrier for the plant disease Spotted Wilt. Severe damage to tomato plants may result from this virus.

Order Hemiptera (Bugs, Aphids, Scale Insects)

This group contains a large number of pest species, many of them introduced. A serious vegetable pest is the Green Vegetable Bug (*Nezara viridula*) which is partially controlled by an introduced wasp parasite, *Trissolcus basalis*. The native Rutherglen Bug (*Nysius vinitor*) may at times swarm on vegetables and fruit trees, but seems less serious in this State than on the other side of the continent. The Crusader Bug (*Mictis profana*), so named because of the light-coloured St Andrew's cross on the back of the adult, feeds normally on acacias and other native plants, but it frequently invades cultivated areas and it may be troublesome to young citrus. The Apple Dimpling Bug (*Campylomma livida*) is a native species which sometimes causes severe malformation of apples by feeding upon the very small developing fruit.

One native aphid (*Anomalaphis comperei*) has been recorded. The only two districts from which it has so far been collected are Albany and Karridale where it has been found infesting native peppermint (*Agonis flexuosa*). A point of interest about these occurrences is that the aphids were associated with a heavy Argentine Ant infestation in the area. Since the removal of the ants, following dieldrin spraying, no further aphids have been discovered.

Numerous introduced species occur as pests on vegetables, garden plants and fruit trees, *e.g. Myzus persicae* (peaches, potatoes, etc.), *Toxoptera aurantii* (citrus), *Brevicoryne brassicae* (cabbages, cauliflowers, etc.) and *Eriosoma lanigerum* (Woolly Aphid of apples). A relatively recent record which may prove of some importance is *Aphis craccivora*. This insect carries a virus disease of subterranean clover known as ' stunt '.

Of the native coccids the gall-forming members of the genus *Apiomorpha* are among the most remarkable. The woody galls in which the female insects pass their days vary from small structures a fraction of an inch across to woody knobs the size of an apple. From an economic point of view, however, the various introduced scale insects demand most attention. Included in the list of pest species are the following:

San Jose Scale (*Quadraspidiotus perniciosus*), which is a serious pest of apples.

Citrus Red Scale (*Aonidiella aurantii*), found mainly on citrus but with a wide host range.

Brown Olive Scale (*Saissetia oleae*), found attacking citrus, stone fruits and garden shrubs.

White Wax Scale (*Ceroplastes destructor*), which is mainly a pest of citrus but which attacks many cultivated shrubs.

Soft Brown Scale (*Coccus hesperidum*), which has a wide host range but is of greatest importance on citrus.

Grass-crown Mealybug (*Antonina graminis*), a widespread and troublesome pest causing damage to lawns particularly in the warmer parts of the State.

Order Coleoptera (Beetles)

This order is the dominant one among existing insects and is represented in Western Australia by many and varied forms. The carnivorous ground beetles (Carabidae) are widely distributed, one of the best-known species being the bright green Stink Beetle (*Calosoma schayeri*). The tiger beetles, of the sub-family Cicindelinae, are of interest not only because of the metallic colouration seen in many forms but because of their association with the inland salt-lakes. The larvae are subterranean and may be collected by digging on the lake margins.

The ladybirds (Coccinellidae) comprise a group of considerable economic importance and in addition to native species the State contains a number specially introduced to combat various scale insects and aphids. Among the best known of the introduced species are *Cryptolaemus montrouzieri* and *Leis conformis*. The larvae of *Cryptolaemus* are covered with a whitish material which makes the insect superficially resemble the mealybugs upon which it feeds. *Leis conformis* in conjunction with the wasp parasite *Aphelimus mali* plays an important role in combating the Woolly Aphid of apple trees. Destructive leaf-eating ladybirds belonging to the genus *Henosepilachna* were once found only in the northern parts of the State where they attack vegetables, especially pumpkins and melons. In 1956, specimens of *Henosepilachna* were collected in Perth. Since then they have become established in several suburban areas, but how the introduction occurred is not known.

The jewel beetles (Buprestidae) contain some of the most colourful beetles to be found anywhere in the world. Western Australia is particularly rich in species and at times the beetles may be found in large numbers on flowering mallee and sand plain flora. One of the commonest is the metallic green *Stigmodera gratiosa*, and one of the largest is *Julodimorpha bakewelli*, measuring almost three inches in length. Although the beetle larvae are wood borers, closely resembling the 'bardee' in appearance and habits, they are of little economic importance.

The cockchafers or scarabs (Scarabaeidae) are represented by a great diversity of forms. Several species may swarm on to flowering fruit trees and roses in the early summer and are popularly known as Spring Beetles. The bronze-coloured *Colymbomorpha lineata* is a common pest of apple trees during the blooming period and the Saddle-backed Beetle (*Phyllotocus ustulatus*) sometimes visits citrus blossoms in large numbers. An introduced species commonly known as the Black Beetle (*Heteronychus arator*) has gained a firm footing in the State and is a troublesome pest of lawns and turf. It is also growing in importance as a pasture and vegetable pest. A native species of *Colpochilodes* has caused spasmodic damage to cereal crops and clover pastures in the southern portions of the State.

The longicorn beetles (Cerambycidae) are a group of wood-boring insects represented by a number of different species. They are often blamed for the death of forest eucalypts, although investigations have shown that heavy beetle infestations are usually secondary

and that healthy trees are seldom seriously affected by the beetles. The larval stage of this group is the so-called ' bardee ', at one time prized by the Aborigines as food. They are not a pest of structural timber as they do not attack seasoned material.

The leaf beetles (Chrysomelidae) may superficially resemble ladybirds in general appearance as some of them are rounded and quite brightly coloured. Two species have been introduced into the State for the purpose of combating St John's Wort, a troublesome weed in some districts. *Chrysomela gemellata* and *C. hyperici* were originally introduced into Australia from the South of France and liberated in Victoria with very satisfactory results. The local colonies were obtained from the latter source and have become established in several districts. In some situations a reduction in St John's Wort can be attributed definitely to beetle activity, but in many areas the picture is obscure due to the extensive use of chemical sprays.

Common pest species in eastern Australia are the Pumpkin Beetles (*Aulacophora hilaris* and *Rhaphidopalpa palmerstoni*). These beetles are found in the north of the State but do not extend into the cooler latitudes.

The weevils (Curculionidae) are a very specialised group characterised by the presence of a rostrum or ' snout ' which bears the mouth and antennae. The genus *Leptopius* contains a number of large greyish weevils, many of which breed in association with acacias. One of the best-known members of the family is *Catasarcus rufipes* which feeds on eucalypt foliage and may disfigure young street trees. The almost world-wide Rice Weevil (*Sitophilus oryzae*) is our principal pest of stored grain, but the Granary Weevil (*S. granarius*) also occurs. Two common orchard pests are the introduced Apple Weevil (*Otiorrhynchus cribricollis*) and Fuller's Rose Weevil (*Pantomorus cervinus*).

Order Neuroptera (Lacewings)

This order contains a number of useful insects, for many of the neuropterous larvae feed upon scale insects and other pests. The family Myrmeleontidae has a number of large, rather dragonfly-like species, the larval stages of which build conical sand pits and are commonly known as ant lions. Amongst the most remarkable of the local lacewings are two members of the family Nemopteridae in which the hind wings are greatly modified. In the genus *Croce* they are long and thread-like and in the Spoonwinged Lacewing (*Chasmoptera hutti*) they are spoon-shaped or paddle-shaped.

Order Diptera (Flies, Mosquitoes, etc.)

This group contains a vast number of species, many of which are of major economic importance.

The mosquitoes are well represented, the commonest species being the Brown House Mosquito (*Culex fatigans*) and the Yellow-fever Mosquito (*Aedes aegypti*). The latter species is the carrier for dengue fever in the northern portion of the State. The anophelines are represented by the widely distributed *Anopheles annulipes* and several much rarer forms. *A. annulipes*, together with *Aedes alboannulatus*, have played an important part in the spread of the rabbit virus *Myxomatosis*.

Of the introduced flies, those causing most trouble are the Australian Sheep Blowfly (*Lucilia cuprina*) and the Mediterranean Fruit Fly (*Ceratitis capitata*). The Buffalo Fly (*Haematobia exigua*) is a serious stock pest in the Kimberley Division of the State, but so far has not become established in the cattle areas of the south. It is believed to have originally reached Australia on buffaloes introduced from Asia.

The common House Fly (*Musca domestica*) is widespread as is also the native Bush Fly (*Musca vetustissima*). Despite its common occurrence and extremely wide range, the natural breeding habits of the latter fly are not fully known.

Modern insecticides such as DDT, dieldrin and the various organic phosphates gave outstanding control of various fly pests for several years. The widespread development of resistance in both housefly and blowfly populations has greatly complicated the matter, however, and drawn attention to the importance of preventive measures, such as sanitation in the case of houseflies, and the Mules operation and crutching in the case of the sheep blowfly.

The March flies (Tabanidae) are well represented but, although their blood-sucking habits render them annoying, both to livestock and humans, they are not a serious pest.

Of the many useful flies may be mentioned the blowfly-like tachinids which parasitise caterpillars, grasshoppers and other pests and the bee flies (Bombyliidae) which parasitise the eggs of other insects. The maggots of the bombyliid fly (*Cryptomorpha flaviscutellaris*) are commonly found in the egg pods of the Small Plague Grasshopper (*Austroicetes cruciata*).

Order Siphonaptera (Fleas)

A number of introduced as well as native fleas occur in this State. *Echidnophaga myrmecobii*, found originally on native mammals, is a very common parasite of rabbits in the drier parts of the State. The Poultry Stickfast Flea (*E. gallinacea*) closely resembles the former species but is mainly a pest of poultry and domestic animals. The Oriental Rat Flea (*Xenopsylla cheopis*), the Human Flea (*Pulex irritans*) and the Cat and Dog Fleas (*Ctenocephalides felis* and *C. canis*) are among the most important introduced species.

Order Lepidoptera (Moths, Butterflies, etc.)

The primitive swift moths (Hepialidae) are represented locally by a number of very beautiful forms. The larvae are wood borers but do not occur in sufficient numbers to constitute a serious forestry pest. Several large and striking members of the genus *Aenetus* occur in the lower South-West.

A group of small native moths of the family Pyralidae, sub-family Crambinae and commonly known as pasture webworm moths (*Hednota pedionoma*, *H. crypsichroa*, etc.) is a serious pest of cereal crops (excepting oats) and grass pastures. Depredations are controlled by planting on clean fallow, but the recent trend towards ley farming has greatly favoured these pests.

A family of considerable interest to the orchardist is the Tortricidae, for to this group belong the Codling Moth (*Cydia pomonella*) and the Oriental Fruit Moth (*C. molesta*). Outbreaks of Codling Moth have occurred on a number of occasions, but drastic eradication measures have so far prevented this major apple pest from becoming permanently established and have given Western Australia the distinction of being the only large apple-producing country where the moth is not a major problem.

One of the best-represented families is the Noctuidae (cutworms) which contains several important pests. Included under this heading are the Climbing Cutworm or Native Budworm (*Heliothis punctigera*), the Cluster Caterpillar (*Spodoptera litura*), the Rough Bollworm (*Earias huegeli*), the Brown Cutworm (*Agrotis munda*) and the Southern Army Worm (*Persectania ewingii*). The first three species are serious pests in the cotton areas of the north. The Fruit-sucking Moth (*Othreis materna*) also belongs to this group and causes heavy losses in citrus fruit grown around pastoral homesteads in the Kimberley and the North-West. In almost all cases where moths and butterflies are regarded as pests it is only the caterpillar stage which is destructive. The Fruit-sucking Moth, however, has a rasp-like proboscis capable of piercing orange and citrus skins and then sucking up the juice. Fortunately the creatures do not normally range to the citrus areas of the South-West.

One of the most remarkable members of the family Agaristidae is the Whistling Moth (*Hecatesia fenestrata*). The male of this species is active just at sunset and makes a loud clicking noise during its fast circling flight.

Other common moth pests are the Cabbage Moth (*Plutella maculipennis*), the Potato Moth (*Phthorimaea operculella*) and the Apple Looper Moth (*Chloroclystis laticostata*).

The beautiful *Carthaea saturnioides* with its large eye spots on the wings superficially resembles the Emperor moths. Its range is restricted to south-west Australia and the creature is much prized by collectors.

The butterfly fauna of the State lacks many large and showy forms. Some of the northern species such as *Hypolimnas bolina nerina* are quite colourful but the State has nothing to compare with the conspicuous and beautiful species found in the tropics of eastern Australia.

The blues (Lycaenidae) are well represented and the association of many larvae with ant nests renders the group a particularly interesting one.

The skippers (Hesperiidae) are relatively drab-coloured butterflies with strong powers of flight. Over twenty species are recorded from the State and some forms are endemic to the South-West.

Only one butterfly is of economic importance and that is the introduced Cabbage White Butterfly (*Pieris rapae*) which reached this State in 1943. It attacks cabbages, cauliflowers and related plants as well as one or two other strong-tasting herbs such as watercress. The butterfly belongs to the whites, or Pieridae, which group contains a number of native species. Several members of this family, including the introduced Cabbage White, display extraordinary powers of flight and the native Caper White (*Anaphaeis java teutonia*) has been observed to carry out mass migrations of remarkable proportions on the eastern side of the continent.

Order Hymenoptera (Bees, Wasps, Ants)

The wood wasps and Sirex wasps (Siricidae) include several pests which have been established in New Zealand and Tasmanian pine forests. Imported timber (including 4 million superficial feet of prefabricated housing material) has been fumigated from time to time following the location of infested material.

The saw flies (Tenthredinidae) are represented locally by a number of native forms. The larvae of the genus *Perga* may often be seen in caterpillar-like clusters amongst the foliage of eucalypts. An introduced saw fly (*Caliroa cerasi*) is a common pest on pear and plum trees. The smaller parasitic wasps (ichneumonids, chalcids and their allies) are well represented and play an important role in combating many insect pests. Some attack caterpillars, some aphids and scale insects and other insect eggs, so that without their aid the problem of pest control would be even more difficult than at present.

The ant fauna (Formicidae) of the State is extremely varied. One of the best-known native species is the Meat Ant or Mound Ant (*Iridomyrmex detectus*) which often nests on gravel paths and road-sides. Among the most remarkable of the local ants may be listed *Camponotus inflatus*, the Honey-pot Ant of the interior, and *Myrmecia regularis* of the karri forest area which has the frog *Metacrinia nichollsi* as a tolerated guest in its nest. The Honey-pot Ant derives its name from the fact that certain individuals in the nest store honey until their abdomens become inflated to the size of grapes. This honey is then regurgitated to other ants as required. These ants were once prized by the natives as a food delicacy.

Two important introduced ant pests are the Argentine Ant (*Iridomyrmex humilis*) and the Singapore Ant (*Monomorium destructor*). The Argentine Ant was once widespread in the metropolitan area, Albany and Bunbury, with several other country outbreaks. The insect has been reduced in recent years, however, as a result of a large-scale control campaign. A five-year control scheme against the ant, with provision for an annual expenditure of $210,000 was inaugurated in 1954. The scheme involved the spraying with dieldrin of all known infested areas, which were originally estimated to cover approximately 25,000 acres. During the course of the campaign further outbreaks were discovered, giving an estimated total of 45,000 acres and, in consequence, a year's extension of the campaign was authorised by Parliament. As a result of this a total of over 44,000 acres was sprayed and the ant menace was removed from the city and suburbs and most country districts. However, an area of almost impenetrable swamp country north of Perth still harbours the ants. To prevent spread from this area and to deal with any survivals or later introductions, a 'continuance scheme' financed from Consolidated Revenue was approved. Approximately 8,000 acres, consisting of survivals and new infestations in metropolitan and country areas, were treated under this programme. The campaign is continued under a new Act, the *Argentine Ant Act, 1968*, operative from 1 January 1969, which vests the authority for direction of the ant control campaign with the Minister for Agriculture. The total area treated since the commencement of the campaign in 1954 now stands at approximately 54,400 acres.

The social wasps (Vespidae) were once known only from the northern portion of the State. About 1949, however, colonies of *Polistes variabilis* were located in various parts of the Perth suburban area and they have now extended to some of the orcharding districts in the Darling Range. How the introduction occurred is not known.

The burrowing wasps, including the sand wasps (Pompilidae), the flower wasps (Scoliidae) and solitary ants (Mutillidae) are well represented. The latter are, of course, not true ants but the wingless females bear a superficial resemblance to ants which is further accentuated by their ability to inflict a painful sting. The flower wasps are particularly numerous and winged males carrying wingless females are common around flowering plants in the early summer. Of the solitary ants the black and white *Ephutomorpha cribricollis* is the best known. Most of the wasps mentioned are beneficial, for they store caterpillars and other insects in mud nests and underground burrows to serve as food for the wasp grubs.

The majority of native bees are solitary forms although some, like the Colletidae, often choose a common site for nest burrowing and hundreds of tunnels may be located close to one another.

The leaf-cutting bees (Megachilidae) often attract notice from their habit of cutting circular pieces from rose leaves and other foliage for use in nest construction.

The only native social bees belong to the genus *Trigona* which does not occur in the southern portions of the State.

CLASS ARACHNIDA (Spiders, Mites, Ticks, etc.)

Creatures grouped under the above heading are, of course, not true insects and will be dealt with only very briefly. Several forms are of considerable economic importance, as for example the Cattle Tick (*Boophilus microplus*) and the Fowl Tick (*Argas persicus*). The Cattle Tick is confined to the Kimberley Division and its range corresponds roughly with that of the Buffalo Fly. The Ornate Kangaroo Tick (*Amblyomma triguttatum*) is a common species. It is occasionally collected as an accidental parasite on domestic animals and man.

The most serious mite pest is the Red-legged Earth Mite (*Halotydeus destructor*) which is very destructive to young legumes and other seedlings. It may be particularly troublesome on subterranean clover pastures. Other mites of importance to orchardists and market gardeners are the spider mites (Tetranychidae) which include such cosmopolitan species as the Two-spotted Mite (*Tetranychus urticae*) and the Bryobia Mite (*Bryobia rubrioculus*).

Spiders constitute a large group, most of which are useful on account of their insectivorous habits, although bites from some of the larger species may produce painful after-effects. The most dangerous local spider is the Red-backed Spider (*Latrodectus mactans hasselti*). This species, whose bite may even prove fatal, is easily recognised by the conspicuous red streak down the centre of the abdomen.

Scorpions of various kinds are widely distributed over the State and the larger ones may be able to inflict a painful sting. There is one record of a baby dying at Pemberton from the effects of scorpion venom but no other reports of serious after-effects are available and, generally speaking, the group is of little local importance.

THE USE OF PESTICIDES IN WESTERN AUSTRALIA

It has been estimated that insects and their allies take toll of 20 per cent of man's food and fibre crops every year, and that the combined loss for Australia and New Zealand is in excess of $100 million annually.

For this reason, a wide range of chemicals has been developed for pest control and their use has expanded rapidly in recent years.

After World War II a new era dawned as far as the use of pesticides was concerned, when many new chemicals were developed as insecticides, miticides, herbicides and fungicides. In the insecticide field two major groups, represented by DDT, BHC and

dieldrin (chlorinated hydrocarbons) and maldison, parathion and diazinon (organic phosphates), took over almost completely from the older chemicals. The development of new types is currently being vigorously promoted by the major chemical firms.

It is conservatively estimated that pesticides research by commercial interests costs approximately $70 million a year and that seven years' work and up to $2 million expenditure may be necessary to bring a new product to the farmer.

Despite this enormous expenditure and the more efficient control which is being made possible with modern chemicals, progress in this field has fallen far short of what was once thought possible. At least one reason for this is the rapidity with which many creatures have developed resistance to pesticides, necessitating increased rates of application or a search for yet another chemical.

Local examples are the gradual failure of dieldrin to control fly strike in sheep and the increase of spider mites in orchards and market gardens following the breakdown of the once effective demeton-methyl and related organic phosphates.

Dangers associated with the Use of Pesticides

The wide variety and extreme toxicity of many of the newer chemicals, combined with their more extensive use, have greatly increased the hazards of pest control. Despite the dangers associated with the use of modern pesticides, however, investigations have shown that, although death and sickness have occurred in both humans and various forms of wild life as a result of pesticides, human progress owes much to the use of these same chemicals.

Safety Precautions

There are something like 100 international organisations interested in various aspects of food production and storage and nearly thirty of these are interested in pesticides, particularly their safe usage. United Nations organisations such as the Food and Agriculture Organisation and the World Health Organisation produce periodic reports and most Governments have their specialist advisers. One of the most comprehensive reviews was that known as the ' President's Report ' published in 1963 by the United States of America at the instruction of President Kennedy and designed to investigate the dangers associated with the widespread use of pesticides. The committee which carried out the review made a series of recommendations to reduce the hazards associated with the use of chemicals and emphasised the need for more detailed research. It stressed the necessity for programmes of public education, designed not only to give facts about the toxicity of pesticides but also the benefits accruing from their correct usage.

Residues and Tolerance Limits

The Codex Alimentarius Committee on Pesticide Residues held its first meeting in The Hague, Netherlands in January 1966 and government experts and advisers from sixteen countries, including Australia, attended. The Committee considered a programme of work for attention by the Joint Meeting on Pesticide Residues (W.H.O. Expert Committee on Pesticide Residues and F.A.O. Working Party on Pesticide Residues) and outlined ' Basic Principles for the Adoption of Tolerances of Pesticide Residues.'

They stated that ' various differences in existing national tolerances represented a potential barrier to international trade and an attempt seems necessary to achieve uniformity in figures '. They requested member governments to consider the suggestion ' that provisional international tolerances might be reached which, although not based on acceptable daily intake figures, would provide a measure of agreement, whilst ensuring that foods are as sound as possible under the prevailing economic and other conditions '.

Certain principles governing consumer safety in relation to pesticide residues were established in 1961 by an F.A.O./W.H.O. Joint Meeting on Pesticide Residues. The meeting stated that ' the contamination of human and animal food should be restricted to the lowest possible level and that the amount of a residue should not be higher than that which results from good agricultural practice provided that the final amount is accepted as safe for long term consumption by man '.

In addition to fixing acceptable international residue standards, there is also necessity for the clarification of such terms as ' tolerance ' and ' zero tolerance '. It has been suggested that the phrase ' trade or import tolerance ' be used to define residues acceptable at the point of entry in a country and that ' acceptable consumer residue ' be applied to residues acceptable at the time of consumption. The concept of ' no residue ' or ' zero tolerance ' is unacceptable to many as the accuracy with which residues can be detected depends upon the analytical techniques available, so that products acceptable under a nil tolerance by one technique could be excluded by another.

CONDITIONS IN WESTERN AUSTRALIA

Pesticide Registration

All pesticides offered for sale in Western Australia must be registered under the Health Act, and must comply with special conditions with regard to labelling and safety precautions. Before being approved for registration, products are considered by the Pesticides Advisory Committee which has the following representation:

The Commissioner of Public Health
The Director of the Government Chemical Laboratories
The Director of Agriculture or his deputy
The Secretary of the Poisons Advisory Committee.

Provision is also made for the co-opting to the committee of any person who may be able to supply specialised information on trade requirements.

In the case of veterinary products, these must also be registered under the Veterinary Medicines Act, and all poisons must also comply with the requirements of the Poisons Act.

Before being considered by any of the State Committees, pesticides are checked by the National Health and Medical Research Council and cleared by the Commonwealth Government's ' Technical Committee on Agricultural Chemicals '.

Safety Precautions

Under the Acts already mentioned, various safety precautions are stipulated, including maximum concentrations for very toxic materials (*e.g.* parathion cannot normally be marketed in concentrations over 25 per cent), the type of protective clothing to be worn and the period which must elapse between treatment and harvesting. As a further safeguard, particularly from indiscriminate aerial spraying, requirements have been drawn up for the chemical rating of pilots engaged in aerial spraying and the control of the chemicals used.

PESTICIDE RESIDUES

In recent years there has been growing concern at the presence of pesticide residues in certain foodstuffs and the pollution of rivers and streams by various types of chemicals. The appearance of chemical residues in the tissues of such marine creatures as penguins and seals taken far from any known source of contamination has posed further problems, and has stimulated world-wide interest in pesticide usage and the associated side effects.

To reduce the chances of pollution, DDT and allied materials (chlorinated hydrocarbons) have been banned in some countries and their use greatly restricted in others. In Western Australia chlorinated hydrocarbons are not permitted for the treatment of stock or poultry and special conditions apply to their use on pastures and food crops. In order to check that these requirements are being implemented and that the desired effects are being achieved, various food products are periodically analysed for chemical residues and pest control methods are kept under continual review.

Present indications are that chemicals will continue to be the most important means of pest control for years to come. It is expected, however, that many of the highly toxic pesticides will be replaced by less dangerous formulae, and that wide spectrum chemicals will give place to materials with more specific functions. More use will also be made of sterilisation techniques, insect diseases and the breeding of resistant types of plants.

Pesticide applications may also be restricted by the more widespread use of the method generally known as ' integrated pest control ', which entails the combination of several methods of pest control in such a manner as to be complementary and not antagonistic to one another. This method necessitates a detailed ecological study of the pest involved so that cultural practices, parasite introduction or encouragement and chemical treatments can be suitably co-ordinated. The successful use of this method may also necessitate the acceptance of a slightly lower, but more practical degree of pest control, and a slight lowering of market standards.

FURTHER SOURCES OF INFORMATION

The difficulties confronting anyone trying to review in a few pages the entomological fauna of such a large State as Western Australia will be better appreciated if it is remembered that in the *Western Australian Year-Book* for 1898-99 the late A. M. Lea expressed the opinion that there were about 30,000 species of insects indigenous to this State. Many additions have been made in the last sixty years and one is faced with the problem of deciding which creatures warrant special mention and which must be excluded for lack of space. The general reader interested in consulting other short reviews of the local insect fauna is referred to A. M. Lea's article in the 1898-99 Year Book under the title of ' The Insects of Western Australia '; in the Year Book for 1900-01 the late H. M. Giles wrote ' A Glimpse of Western Australian Entomology '.

Two short summaries have also appeared in conjunction with science conferences in this State. The *Handbook and Review* published for the 1926 meeting of the Australasian Association for the Advancement of Science contained an article by L. J. Newman and the *Handbook* for the 1947 meeting of the Australian and New Zealand Association for the Advancement of Science printed a short summary of the local insects by L. Glauert.

Readers interested in more technical summaries are referred to Professor G. E. Nicholl's ' The Composition and Biographical Relation of the Fauna of Western Australia ' (*A.N.Z.A.A.S.*, Vol. XXI, 1933, p. 93), the relevant volumes of *Die Fauna Südwest-Australiens* by Michaelsen and Hartmeyer, 1907–1930, and the report of the Swedish expedition under Dr E. Mjöberg.

More detailed information relating to the forms of economic importance will be found in the publications of the Western Australian Department of Agriculture.

Literature covering the general aspects of Australian entomology includes:

ANON. *Use of Pesticides.* A Report of the President's Science Advisory Committee. Government Printing Office, Washington, D.C., 1963. 25 pp.

BARRETT, C. AND BURNS, A. N. *Butterflies of Australia and New Guinea.* N. H. Seward Pty Ltd, Melbourne, 1951. 187 pp.

CARSON, R. *Silent Spring.* Hamish Hamilton, London, 1963. 304 pp.

COMMON, I. F. B. *Australian Moths.* Jacaranda Press, Brisbane, 1963. 128 pp.

COMMON, I. F. B. *Australian Butterflies.* Jacaranda Press, Brisbane, 1966. 131 pp.

MCKEOWN, K. C. *Australian Insects.* An Introductory Handbook. Published by R.Z.S. of N.S.W., Sydney, 1945. 303 pp.

MAIN, BARBARA YORK. *Spiders of Australia.* Jacaranda Press, Brisbane, 1964. 124 pp.

RIEK, EDGAR. *Insects of Australia.* Jacaranda Press, Brisbane, 1963. 128 pp.

TILLYARD, R. J. *The Insects of Australia and New Zealand.* Angus and Robertson Ltd, Sydney, 1926. 560 pp.

WATERHOUSE, G. A. *What Butterfly is That.* A Guide to the Butterflies of Australia. Angus and Robertson Ltd, Sydney, 1932. 291 pp.

WATSON, J. A. L. *The Dragonflies (Odonata) of South-Western Australia.* Western Australian Naturalists' Club, Perth, 1962. 72 pp.

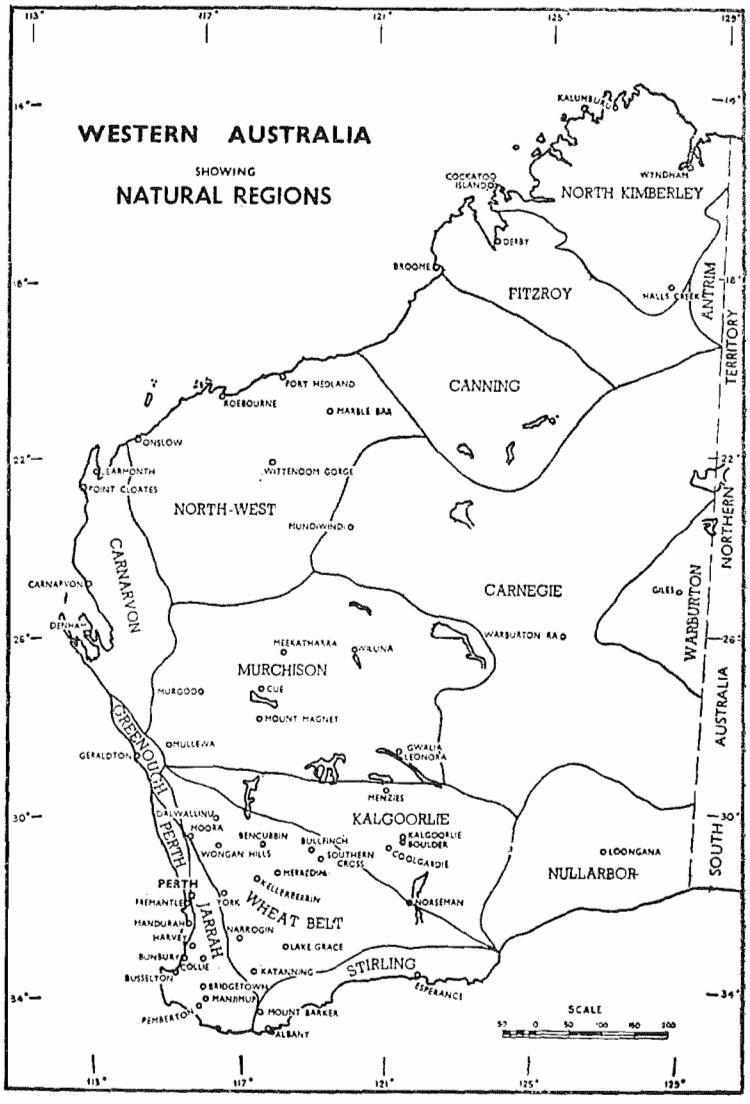
WHITTEN, J. L. *That We May Live.* D. van Nostrand Co., Princeton, New Jersey, 1966. 251 pp.

Chapter II—continued

Part 6—Natural Regions

Contributed by Rex T. Prider, B.Sc., Ph.D., F.G.S., M. Aust.I.M.M.
(Professor of Geology, University of Western Australia)

The physical features, geology, climate, flora and fauna of Western Australia have been outlined earlier in this Chapter and the sub-division of the State into ' natural regions ' may now be considered. A Natural Region is one clearly marked off from neighbouring regions by topographical, geological, climatic, or biological conditions, or by combinations of these, so that, as far as Man's activities are concerned, they have different economic possibilities.



CHARACTERISTICS OF THE NATURAL REGIONS OF WESTERN AUSTRALIA

The sub-division of Western Australia into Natural Regions (see map on page 95) has been described by E. de C. Clarke in *Jour. Roy. Soc. West. Aust.* vol. XII, pp. 117-32. A summary of the characteristics of these different Natural Regions (reprinted by courtesy of the University of Western Australia Press from Clarke, Prider and Teichert: *Elements of Geology for Western Australian Students*) is given below.

NATURAL REGION	TOPOGRAPHY	GEOLOGY	RAINFALL	WATER SUPPLY (*a*)	VEGETATION, ETC.
ANTRIM .... (*geographic*)	Tableland	Cambrian sediments and lavas	Summer, monsoonal, 20 in to 40 in	Catchments, wells and artesian	Grassland and savannah
NORTH KIMBERLEY (*geographic*)	Dissected stony tableland	Younger Precambrian	Summer, monsoonal, 30 in or more	Streams, springs, catchments	Luxuriant in valleys, sparse on tableland
FITZROY .... (*chief river*)	Very wide valleys and low hills	Palaeozoic (largely Permian)	Summer, monsoonal, 20 in to 30 in	Catchments and artesian	Grassland and savannah
CANNING .... (*A. W. Canning, surveyor and explorer*)	Sand ridges and tabletop hills	Palaeozoic and Mesozoic	Summer, 15 in or less	Springs, pools, artesian water? (undeveloped)	'Spinifex' (species of *Triodea*) and desert shrubs
CARNEGIE .... (*David Carnegie, explorer*)	Sand ridges and tabletop hills	? Tertiary (sandy) and ? Younger Precambrian	Variable and unreliable, probably about 5 in	Catchments	'Spinifex' and desert shrubs
WARBURTON .... (*Warburton Range*)	Hills (some over 3,000 feet) separated by sandy country	Older Precambrian	Variable and unreliable, perhaps about 5 in. Probably better than Carnegie Region owing to high hills	Catchments, some springs	'Mulga' (species of *Acacia*) and 'Spinifex'
NORTH-WEST .... (*common usage*)	Rugged hills. Rivers in well-defined valleys	Younger and Older Precambrian. Many economic minerals	Variable, unreliable, 15 in or less	Wells, catchments, pools	'Spinifex', few shrubs and trees
MURCHISON .... (*common usage*)	Ridge hills and breakaways. Rivers in shallow beds. Salt 'lakes'	Older Precambrian. Economic minerals especially gold	Summer or winter, unreliable, 10 in or less	Wells (potable groundwater)	'Mulga'. Eucalypts scarce except along rivers

KALGOORLIE .... (*chief town*)	Less hilly than Murchison. Salt 'lakes'. No defined watercourses except salt lake system	Like Murchison Region	Mainly winter, unreliable, 10 in or less	Catchments. Ground water too salty for use	Eucalypt forest, especially Salmon Gum (*E. salmonophloia*), Gimlet (*E. salubris*) and Red Morrel (*E. longicornis*)
WHEAT BELT .... (*common usage*)	Same as Kalgoorlie Region	Older Precambrian, but few 'greenstones'	Winter, reliable, 10 in to 20 in	Similar to Kalgoorlie Region, but ground water potable in many places; therefore wells frequent	Eucalypt forest—Salmon Gum, Gimlet, and Morrel
JARRAH (*chief timber*)	More dissected than Wheat Belt Region, especially near Darling Scarp	Like Wheat Belt Region but there is an extensive cuirass of laterite	Winter, reliable, 25 in to 40 in	Streams and springs	Forest of Jarrah (*E. marginata*), Wandoo (*E. redunca* var. *elata*), Karri (*E. diversicolor*) and Marri (*E. calophylla*)
CARNARVON (*chief town*)	Elevated plain with table-top hills	Palaeozoic, Mesozoic, Tertiary and later	Summer or winter, very unreliable, about 10 in	Artesian in many places. Catchments, pools	Sparse scrub in north, denser in south
GREENOUGH .... (*river*)	Sandstone tableland	Mesozoic and older	Winter, 15 in to 20 in	Springs, wells and catchments	Scrub
PERTH .... (*chief town*)	Coastal plain	Mesozoic and later	Winter, reliable, 20 in to 35 in	Springs, wells, artesian	Scrub, swamp and forest
STIRLING .... (*prominent range*)	Undulating tableland with abrupt ranges	Siliceous Tertiary sediments with inliers of Younger and Older Precambrian	Winter, 15 in or less	Catchments, stream water generally too salty for use	Heath and swamp
NULLARBOR .... (*geographic*)	Tableland, no hills	Calcareous Tertiary sediments	Winter, 10 in or less	Catchments. Subartesian	Poor grassland

(*a*) 'Wells' refers to those that draw on ground water, but are not artesian. 'Catchments' refers to water collected on the surface—naturally in gnamma holes, artificially by conserving the run-off. 'Pools' refers to pools in watercourses and includes rock holes.

(51)—5074

CHAPTER III—CONSTITUTION AND GOVERNMENT

Western Australia is one of the six federated sovereign States which, together with the Northern Territory and the Australian Capital Territory, constitute the Commonwealth of Australia. Thus, in addition to having its own Parliament and executive government, it is represented in the federal legislature. As well as government at the Federal and State levels, there is a third system, that of local government, which functions through City Councils, Town Councils and Shire Councils.

OUTLINE OF CONSTITUTIONAL DEVELOPMENT

A Legislative Council was established in Western Australia shortly after its foundation as a Crown Colony and sat for the first time in February 1832. The Council was non-elective and consisted of the Governor and four senior officials. In 1839, membership was increased to nine when the Governor nominated four unofficial members. Additional appointments were made from time to time until the dissolution of the nominee Legislative Council in 1870 with the inauguration of representative government as provided for in the Australian Colonies Government Act of 1850. This Act, which enabled the establishment of representative governments in other Australian Colonies, withheld the privilege from Western Australia until such time as the Colony should be able to defray all costs of government from its own revenues, and it was not until 1870 that it was felt that Western Australia was able to satisfy this condition. The new Legislative Council, elections for which took place in October of that year, consisted of twelve elected members, three nominees and three officials. The number of members of the Council was increased in 1874 to 21, of whom 14 were elected, in 1882 to 24, of whom 16 were elected and in 1886 to 26, comprising 17 elected members, 5 nominees and 4 officials.

Following the passage by the Legislative Council of a Constitution Act in 1889 and subsequent representations made in London by delegates sent from the Colony, responsible government was granted to Western Australia by an Imperial Act assented to on 15 August 1890. Provision was made for the establishment of a Parliament of two Houses, to be known as the ' Legislative Council ' and the ' Legislative Assembly ', to replace the old Council. Proclamation of responsible government was made in Perth on 21 October 1890 and election of the thirty members of the Legislative Assembly took place in November and December. The fifteen members of the Legislative Council were nominated by the Governor, as provided in the Constitution Act, and the Parliament was officially opened on 30 December 1890. The Constitution Act of 1889, while prescribing a Council which was originally nominative, contained a provision that, after the expiration of six years or on the population of the Colony reaching 60,000, the Council should become fully elective. The required population was attained in 1893 and an amendment to the Act in that year enabled the election of twenty-one members to the Legislative Council, and at the same time increased the Legislative Assembly to thirty-three members. By an amendment of 1899, membership of the Legislative Council was raised to thirty and of the Legislative Assembly to fifty. Provision was made for the Legislative Assembly to be increased to fifty-one members by the *Constitution Acts Amendment Act (No. 2), 1965*. The increase in numbers, however, did not become effective until the State general election in 1968.

On 1 January 1901, Western Australia and the five other Australian Colonies were federated under the name of the ' Commonwealth of Australia ', authority for the union having been given by the Commonwealth of Australia Constitution Act which was passed by the British Parliament in 1900. By a provision of the Constitution Act the constituent parts of the Commonwealth previously designated ' Colonies ' became known as

' States '. Under the Constitution, powers are divided between the Parliaments of the Commonwealth and of the States by conferring power in respect of specific subjects on the Commonwealth either exclusively or jointly with the States, leaving the remaining powers to the States.

Procedure in both Commonwealth and State Parliaments is based on British practice. The legislatures consist of the Sovereign, represented by the Governor-General of Australia or the Governor of the State, and the elected members. In the field of executive government the British ' Cabinet ' system has also been adopted. The members of the Cabinets must hold seats in the legislature as elected members. The Cabinet is responsible to the Parliament and continues in office only while holding the confidence of the Parliament. All Cabinet Ministers are members of the Executive Council, the supreme group of advisers to the Crown, and the Cabinet thus provides the executive government of the Commonwealth or the State. The Executive Council is presided over by the Governor-General of Australia or the Governor of the State and at its meetings, which are formal and official in character, the decisions of the Cabinet are given legal form, appointments are made, resignations accepted, proclamations issued and regulations approved.

VICE-REGAL REPRESENTATION

The Governor-General of Australia

Under the Commonwealth Constitution, ultimate executive power is vested in the Crown and is exercised by the Governor-General as the direct representative of the Sovereign. Appointment to the office is made by the Crown after consultation with the Prime Minister of the Commonwealth. The present Governor-General is His Excellency the Right Honourable Sir Paul Hasluck, P.C., G.C.M.G., who was sworn in on 30 April 1969. During the absence from Australia of the Governor-General it is usual for the senior among the State Governors to be appointed Administrator.

The Governor of Western Australia

The Governor of Western Australia is the personal representative of the Sovereign in the State and exercises the powers of the Crown in State matters. He is the titular head of the Government and performs the official and ceremonial functions attaching to the Crown. The present Governor of Western Australia is His Excellency Major-General Sir Douglas Kendrew, K.C.M.G., C.B., C.B.E., D.S.O. In the event of the Governor's absence from Western Australia the Lieutenant-Governor of the State is appointed Administrator. If there is no Lieutenant-Governor it is customary for the Chief Justice of Western Australia to be appointed Administrator.

The last Governor of Western Australia as a Colony was Lieutenant-Colonel Sir Gerard Smith, K.C.M.G., whose term of office expired on 29 June 1900 and the first Governor of the State was Captain Sir Arthur Lawley, K.C.M.G., who was sworn in on 1 May 1901. The names and dates of assumption of office of Governors, Lieutenant-Governors and Administrators from the foundation of the Colony to 1951 are shown in the *Official Year Book of Western Australia*, No. 1—1957. Subsequent appointments appear in Year Book No. 4 of 1964 and later issues. The Honourable Sir Albert Wolff, K.C.M.G. was commissioned as Lieutenant-Governor on 26 May 1968 and since that date has performed the functions of Administrator of the State during absences of the Governor.

THE FEDERAL PARLIAMENT

The legislative power of the Commonwealth is vested in a Federal Parliament which consists of Her Majesty the Queen (represented by the Governor-General), a Senate and a House of Representatives. Subject to the Constitution, the Commonwealth Parliament is empowered to make laws concerning, among other things, defence, external affairs, customs and excise, trade and commerce with other countries and among the States, taxation, borrowing of money on public credit, currency and coinage, banking, insurance,

navigation, fisheries, quarantine, posts and telegraphs, census and statistics, immigration, naturalisation and aliens, copyrights and trade marks, bankruptcy, marriage, divorce and matrimonial causes, social services, and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State. The Constitution provides that, when a law of a State is inconsistent with a law of the Commonwealth, the Commonwealth law shall prevail and the State law shall, to the extent of the inconsistency, be invalid.

The qualifications necessary for membership of the Commonwealth Parliament and for voting at federal elections are described in the *Official Year Book of the Commonwealth of Australia.*

The payment of allowances to Senators and Members of the House of Representatives is provided for in the Constitution and a superannuation scheme is established under the provisions of the *Parliamentary Retiring Allowances Act* 1948-1966.

The Senate

The Senate consisted originally of thirty-six members, six Senators being returned from each State. The Parliament is authorised by the Constitution to increase or decrease the number of members. The growth of the population since Federation having been such as to warrant a considerable enlargement of the Parliament, a Representation Act was passed in 1948 to provide for increased membership by raising from six to ten the number of Senators from each State. At the same time the alternative system of counting of votes in elections for the Senate was altered by the Commonwealth Electoral Act to one of proportional representation, a summarised description of which is given in the *Official Year Book of the Commonwealth of Australia,* No. 38, pages 82-3.

Members are elected on the basis of adult suffrage by the people of the State which they represent. As provided by the *Commonwealth Electoral Act* 1918–1966, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925. The term of office of a Senator is normally six years. One-half of the members retire at the end of every third year and are eligible for re-election.

The Western Australian membership of the Senate at 31 December 1969 is shown in the following table.

WESTERN AUSTRALIAN MEMBERS OF THE SENATE

Due to retire on 30 June 1971		Due to retire on 30 June 1974	
Name	Political party	Name	Political party
Branson, G. H.	Lib.	Prowse, E. W.	C.P.
Cant, H. G. J.	A.L.P.	Sim, J. P.	Lib.
Drake-Brockman, T. C., D.F.C.	C.P.	Wilkinson, L. D.	A.L.P.
Scott, M. F.	Lib.	Willesee, D. R.	A.L.P
Wheeldon, J. M.	A.L.P.	Withers, R. G.	Lib.

A.L.P. = Australian Labor Party. C.P. = Australian Country Party. Lib. = Liberal Party of Australia.

The House of Representatives

State membership of the House of Representatives is on a population basis with the proviso that each State shall have at least five members. The Constitution provides further that the number of members of the House of Representatives shall be, as nearly as practicable, double the number of Senators. With the enlargement of the Senate from thirty-six to sixty members, the membership of the House of Representatives was increased,

from the date of the 1949 elections, from seventy-four to 121, not including a member for the Australian Capital Territory, which achieved representation for the first time at this election, and a member for the Northern Territory, which had been represented since 1922. Western Australia's population growth had been such as to necessitate an increase in representation from five to eight, and this number was raised to nine in 1955 as a result of a redistribution following the Census of 30 June 1954. At the same time, the total number of members of the House of Representatives was increased to 122, excluding the two members for the Territories.

Members of the House of Representatives are elected for the duration of the Parliament, which is limited to three years, by the people of the electorate which they represent. As provided by the *Commonwealth Electoral Act* 1918-1966, enrolment as an elector is compulsory for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting is on the preferential system and is compulsory for all enrolled persons in terms of an amendment of 1924 which operated for the first time at elections held on 14 November 1925.

Elections for the House of Representatives were held on 25 October 1969 and all Western Australian electorates were contested. The following table shows the Western Australian membership of the House before the election and at 31 December 1969.

WESTERN AUSTRALIAN MEMBERS OF THE HOUSE OF REPRESENTATIVES

Electoral division (*a*)	Before election of 25 October 1969		At 31 December 1969	
	Name	Political party	Name	Political patry
Canning	Hallett, J. M.	C.P.	Hallett, J. M.	C.P.
Curtin	Garland, R. V. (*b*)	Lib.	Garland, R. V.	Lib.
Forrest	Freeth, Hon. Gordon	Lib.	Kirwan, F. McL.	A.L.P.
Fremantle	Beazley, K. E.	A.L.P.	Beazley, K. E.	A.L.P.
Kalgoorlie	Collard, F. W.	A.L.P.	Collard, F. W.	A.L.P.
Moore	Maisey, D. W.	C.P.	Maisey, D. W.	C.P.
Perth	Chaney, Hon. F. C., A.F.C.	Lib.	Berinson, J. M.	A.L.P.
Stirling	Webb, C. H.	A.L.P.	Webb, C. H.	A.L.P.
Swan	Cleaver, Richard	Lib.	Bennett, A. F.	A.L.P.

A.L.P. = Australian Labor Party. C.P. = Australian Country Party
Lib. = Liberal Party of Australia.

(*a*) See *Appendix* for the origin of the names of the various electoral divisions. (*b*) Elected at by-election held 19 April 1969 to fill vacancy caused by resignation of Rt Hon. P. M. C. Hasluck (now Rt Hon. Sir Paul Hasluck, P.C., G.C.M.G., Governor General of Australia).

THE STATE PARLIAMENT

The Crown, represented by the Governor, and the Parliament, comprising a Legislative Council and a Legislative Assembly, constitute the legislature of Western Australia.

Executive government is based, as in the case of the Commonwealth and in other States, on the system which evolved in Great Britain in the eighteenth century and which is generally known as the 'Cabinet' system. The Cabinet consists of Ministers of the Crown chosen for the Ministry from members of Parliament belonging to the political party, or coalition of parties, which is in the majority in the Legislative Assembly. The Constitution requires that at least one of the Ministers be selected from members of the Legislative Council. In Western Australia, as in the other Australian States, the office of principal Minister is designated 'Premier'.

Since 1890, when responsible government was granted to Western Australia, there have been twenty-three separate Ministries as shown in the following table. No organised political party existed in the Colony until the formation of a Labour party in the 1890s. A Labour Ministry assumed office in 1904. As no previous Ministry had a specific party designation, the table has been annotated accordingly.

MINISTRIES FROM 1890

Name of Premier	Political party	Date of assumption of office	Duration		
			Years	Months	Days
Forrest	(a)	1890—29 December	10	1	17
Throssell		1901—15 February	—	3	12
Leake		27 May	—	5	25
Morgans		21 November	—	1	2
Leake		23 December	—	6	8
James		1902—1 July	2	1	9
Daglish	Labour	1904—10 August	1	—	15
Rason	Liberal	1905—25 August	—	8	12
Moore	"	1906—7 May	4	4	9
Wilson	"	1910—16 September	1	—	21
Scaddan	Labour	1911—7 October	4	9	20
Wilson	Liberal	1916—27 July	—	11	1
Lefroy	"	1917—28 June	1	9	20
Colebatch	"	1919—17 April	—	1	—
Mitchell	Nat. and C.P. (coalition)	17 May	4	10	30
Collier	Labour	1924—16 April	6	—	8
Mitchell	Nat. and C.P. (coalition)	1930—24 April	3	—	—
Collier	Labour	1933—24 April	3	3	27
Willcock	"	1936—20 August	8	11	11
Wise	"	1945—31 July	1	8	1
McLarty	L.C.L. and C.P. (coalition)	1947—1 April	5	10	22
Hawke	Labour	1953—23 February	6	1	10
Brand	L.C.L. and C.P. (coalition)	1959—2 April	Still in office (b)		

C.P. = Country Party. L.C.L. = Liberal and Country League (c). Nat. = Nationalist.

(a) No specific party designation. (b) As at 31 December 1969. (c) The name of the Party was changed to *The Liberal Party of Australia (Western Australian Division) Incorporated* on 15 July 1969.

The Constitution Act of 1889 provided for a Ministry of five members. This number was increased to six by an amendment to the Act in 1896, to eight by another amendment in 1927, and to ten by the *Acts Amendment (Increase in Number of Ministers of the Crown) Act, 1950*. The present Ministry consists of twelve members, as authorised by the *Constitution Acts Amendment Act, 1965*. The names of the Ministers and the portfolios held by them are shown in the following list.

THE MINISTRY AT 31 DECEMBER 1969 (a)

Name of Minister	Title of office
Hon. Sir David Brand, K.C.M.G., M.L.A.	Premier, Treasurer and Minister for Tourists
Hon. Crawford David Nalder, M.L.A.	Deputy Premier and Minister for Agriculture and Electricity
Hon. Charles Walter Michael Court, O.B.E., M.L.A.	Minister for Industrial Development and the North-West
Hon. Edgar Henry Mead Lewis, M.L.A.	Minister for Education and Native Welfare
Hon. Arthur Frederick Griffith, M.L.C.	Minister for Mines and Justice, and Leader of the Government in the Legislative Council
Hon. William Stewart Bovell, M.L.A.	Minister for Lands, Forests and Immigration
Hon. Ross Hutchinson, D.F.C., M.L.A.	Minister for Works and Water Supplies
Hon. Leslie Arthur Logan, M.L.C.	Minister for Local Government, Town Planning and Child Welfare
Hon. James Frederick Craig, M.L.A.	Chief Secretary and Minister for Police and Traffic
Hon. Desmond Henry O'Neil, M.L.A.	Minister for Housing and Labour
Hon. Raymond James O'Connor, M.L.A.	Minister for Transport and Railways
Hon. Graham Charles MacKinnon, M.L.C.	Minister for Health and Fisheries and Fauna

(a) Membership has remained unchanged since the Ministry of twelve was first constituted on 17 August 1965.

The right to vote at parliamentary elections was extended to women by the *Constitution Acts Amendment Act, 1899* and membership of either House was provided for by the *Parliament (Qualification of Women) Act, 1920.* The first woman member of any Australian Parliament was Mrs Edith Dircksey Cowan, O.B.E., who was elected to the Legislative Assembly in March 1921 as member for West Perth. Mrs A. F. G. (later Dame Florence) Cardell-Oliver, M.L.A. for Subiaco, became the first woman Cabinet Minister in Australia when she joined the McLarty Ministry in 1947.

Payment of members was introduced in 1900 by a Payment of Members Act and a superannuation fund is established under the *Parliamentary Superannuation Act, 1948–1968,* which came into operation on 1 January 1949.

The Legislative Council

The Legislative Council consists of thirty members, each of the fifteen Electoral Provinces into which the State is divided being represented by two members. Election is for a term of six years and one-half of the members retire every three years.

The qualifications of a candidate for election to the Legislative Council are that he or she shall be at least 21 years of age, shall have resided in Western Australia for a minimum of one year, be a natural-born or naturalised British subject, and be enrolled, or qualified for enrolment, as an elector. No person may hold office as a Member of the Legislative Council and a Member of the Legislative Assembly at the same time. A Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or a person who has been attainted or convicted of treason or felony may not be elected to the Legislative Council. The qualifications for election as a Member of the Legislative Council are thus identical with those necessary for election as a Member of the Legislative Assembly.

The *Electoral Act, 1907–1967* requires that to qualify for enrolment as an elector a person shall be at least 21 years of age, be a natural-born or naturalised British subject, shall have lived in the Commonwealth of Australia for six months continuously, and shall have lived in Western Australia for three months continuously and in the district for which he claims enrolment for a continuous period of one month immediately preceding the date of his claim. A person is disqualified from enrolment if he is of unsound mind, has been attainted of treason, has been convicted and is serving sentence for any offence punishable by imprisonment for one year or longer, is the holder of a temporary entry permit for the purposes of the *Migration Act* 1958–1966 (Commonwealth) or is a prohibited immigrant under that Act. Enrolment is compulsory under the *Electoral Act Amendment Act, 1964* for all qualified persons except those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and, as provided by the foregoing Act, is compulsory for all enrolled persons.

Under the Electoral Districts Act, the State is divided into a Metropolitan Area, consisting of five electoral provinces, an Agricultural, Mining and Pastoral Area with eight provinces, and a North-West-Murchison-Eyre Area with two provinces. The names and boundaries of these fifteen electoral provinces, together with those of the fifty-one component electoral districts, were given in the previous issue of the Year Book.

A conjoint election for the Legislative Council and the Legislative Assembly took place on 23 March 1968. The Legislative Council election was held for the purpose of filling fifteen vacancies caused by the expiration of the term of office of those members of the Council who were due to retire on 21 May 1968. The strengths of the political parties in the Legislative Council were unchanged by the election and the following table shows the composition of the Council at 31 December 1969.

MEMBERS OF THE LEGISLATIVE COUNCIL AT 31 DECEMBER 1969

Name	Political party	Electoral province
DUE TO RETIRE IN 1971 (*a*)		
Abbey, Hon. C. R.	Lib.	West
Baxter, Hon. N. E.	C.P.	Central
Brand, Hon. G. E. D.	Lib.	Lower North
Ferry, Hon. V. J., D.F.C.	Lib.	South-West
Garrigan, Hon. J. J.	A.L.P.	South-East
Griffith, Hon. A. F.	Lib.	North Metropolitan
Griffiths, Hon. C. E.	Lib.	South-East Metropolitan
Heitman, Hon. Jack	Lib.	Upper West
Hislop, Hon. J. G., M.B., Ch.B., F.R.C.P., F.R.A.C.P.	Lib.	Metropolitan
House, Hon. E. C., D.F.C., D.F.M.	C.P.	South
Hutchison, Hon. Ruby F.	A.L.P.	North-East Metropolitan
Lavery, Hon. F. R. H.	A.L.P.	South Metropolitan
McNeill, Hon. Neil, B.Sc. (Agric.)	Lib.	Lower West
Perry, Hon. T. O.	C.P.	Lower Central
Wise, Hon. F. J. S.	A.L.P.	North
DUE TO RETIRE IN 1974 (*a*)		
Berry, Hon. G. W.	Lib.	Lower North
Claughton, Hon. R. F., B.A.	A.L.P.	North Metropolitan
Diver, Hon. L. C.	C.P.	Central
Dolan, Hon. John	A.L.P.	South-East Metropolitan
Logan, Hon. L. A.	C.P.	Upper West
MacKinnon, Hon. G. C.	Lib.	Lower West
Medcalf, Hon. I. G., E.D., LL.B.	Lib.	Metropolitan
Strickland, Hon. H. C.	A.L.P.	North
Stubbs, Hon. R. H. C.	A.L.P.	South-East
Thompson, Hon. Ronald	A.L.P.	South Metropolitan
Thompson, Hon. S. T. J.	C.P.	Lower Central
Thomson, Hon. J. M.	C.P.	South
White, Hon. F. R.	C.P.	West
Willesee, Hon. W. F.	A.L.P.	North-East Metropolitan
Willmott, Hon. F. D.	Lib.	South-West

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.

(*a*) Section 8 of the *Constitution Acts Amendment Act, 1899-1965* provides that a retiring member shall vacate his seat on 21 May in the year of retirement.

The Legislative Assembly

There are fifty-one members of the Legislative Assembly, each member representing one of the fifty-one Electoral Districts into which the State is divided for the purpose. Members are elected for the duration of the Parliament, which is limited to three years.

A candidate for election must have resided in Western Australia for twelve months, be at least 21 years of age, be a natural-born or naturalised British subject, and be enrolled or qualified for enrolment, as an elector at Legislative Assembly elections. No person is qualified to be a Member of the Legislative Assembly if he is a member of the Legislative Council, a Judge of the Supreme Court, the Sheriff of Western Australia, a minister of religion, an undischarged bankrupt, a debtor against whose estate there is a subsisting order in bankruptcy, or has been attainted or convicted of treason or felony.

The qualifications and disqualifications applying to enrolment as an elector of the Legislative Assembly are the same as those prescribed for electors of the Legislative Council and enumerated in the preceding section *The Legislative Council.* As provided by the *Electoral Amendment Act, 1919* enrolment is compulsory for all qualified persons except

those who are aboriginal natives of Australia. Aborigines, although entitled to enrol, are not required to do so. Voting at elections is on the preferential system and is compulsory for all enrolled persons as provided by the *Electoral Act Amendment Act, 1936*

Maintenance of the electoral rolls for the Legislative Assembly and the Legislative Council was changed from manual to computer operation in September 1969.

The following table shows the membership of the Assembly at 31 December 1969.

MEMBERS OF THE LEGISLATIVE ASSEMBLY
AT 31 DECEMBER 1969

Name	Political party	Electoral district
Bateman, Thomas Henry	A.L.P.	Canning
Bertram, Ronald Edward, A.A.S.A.	A.L.P.	Mount Hawthorn
Bickerton, Arthur William	A.L.P.	Pilbara
Bovell, Hon. William Stewart	Lib.	Vasse
Brady, John Joseph	A.L.P.	Swan
Brand, Hon. Sir David, K.C.M.G.	Lib.	Greenough
Burke, Terrence Joseph	A.L.P.	Perth
Burt, Richard Paull Septimus	Lib.	Murchison-Eyre
Cash, Earl Douglas, B.A., J.P.	Lib.	Mirrabooka
Court, Hon. Charles Walter Michael, O.B.E.	Lib.	Nedlands
Craig, Hon. James Frederick	C.P.	Toodyay
Davies, Ronald	A.L.P.	Victoria Park
Dunn, Kenneth Wathen	Lib.	Darling Range
Evans, Hywel David, B.A.	A.L.P.	Warren
Evans, Thomas Daniel	A.L.P.	Kalgoorlie
Fletcher, Harry Arthur	A.L.P.	Fremantle
Gayfer, Harry Walter	C.P.	Avon
Graham, Hon. Herbert Ernst	A.L.P.	Balcatta
Grayden, William Leonard	Lib.	South Perth
Guthrie, Hon. Hugh Norman	Lib.	Subiaco
Hall, Jack	A.L.P.	Albany
Harman, John Joseph	A.L.P.	Maylands
Henn, Guy Gavin, M.R.C.S., L.R.C.P.	Lib.	Wembley
Hutchinson, Hon. Ross, D.F.C.	Lib.	Cottesloe
Jamieson, Colin John	A.L.P.	Belmont
Jones, Thomas Henry	A.L.P.	Collie
Kitney, Ronald Wilfred	C.P.	Blackwood
Lapham, Stanley Edward, A.A.S.A.	A.L.P.	Karrinyup
Lewis, Hon. Edgar Henry Mead	C.P.	Moore
Manning, Iven Wemyss	Lib.	Wellington
Manning, William Allan, A.A.S.A., A.C.I.S.	C.P.	Narrogin
May, Donald George	A.L.P.	Clontarf
McIver, Kenneth Finlay	A.L.P.	Northam
McPharlin, Walter Raymond	C.P.	Mount Marshall
Mensaros, Andrew	Lib.	Floreat
Mitchell, Clayton Clealand Bickley	C.P.	Stirling
Moir, Arthur McAlister	A.L.P.	Boulder-Dundas
Nalder, Hon. Crawford David	C.P.	Katanning
Norton, Daniel	A.L.P.	Gascoyne
O'Connor, Hon. Raymond James	Lib.	Mount Lawley
O'Neil, Hon. Desmond Henry	Lib.	East Melville
Ridge, Keith Alan	Lib.	Kimberley
Runciman, Ewart	Lib.	Murray
Rushton, Edgar Cyril	Lib.	Dale
Sewell, William Hawkins	A.L.P.	Geraldton
Stewart, Jack McKay	Lib.	Merredin-Yilgarn
Taylor, Alexander Donald, B.A.	A.L.P.	Cockburn
Toms, John Mervin	A.L.P.	Ascot
Tonkin, Hon. John Trezise	A.L.P.	Melville
Williams, Maurice Clifford	Lib.	Bunbury
Young, William Gordon	C.P.	Roe

A.L.P. = Australian Labor Party. C.P. = Country Party. Lib. = The Liberal Party of Australia (Western Australian Division) Incorporated.

PARLIAMENTARY PROCEDURE AND ADMINISTRATIVE MACHINERY

The Sessions of Parliament

The *Constitution Acts Amendment Act, 1899-1965* provides that 'every Legislative Assembly shall exist and continue for three years from the day of the first meeting thereof and no longer; subject, nevertheless, to being sooner prorogued or dissolved by the Governor'. This period during which the Assembly continues is known as a 'Parliament'.

The *Constitution Act, 1889-1963* states that there shall be a session of the Legislative Council and the Legislative Assembly once at least in every year, so that there are generally three sessions during the life of a Parliament.

Up to the election in 1968 there had been twenty-five such Parliaments, and usually the session had been confined to the months July to December.

Prior to the opening of the first session of the twenty-sixth Parliament on 25 July 1968, the Premier announced that it had been decided that, with the exception of the year in which the general election was held, the session would in future consist of two periods with the opening of Parliament taking place as usual about July, and the sittings continuing until November, with the session then resuming about March for a further five or six weeks.

The date of the commencement of a session is proclaimed by the Governor in Executive Council.

Proceedings in Parliament

The conduct of proceedings in the two Houses is governed by the Standing Orders. Power to make and adopt the Standing Orders is given in section 34 of the *Constitution Act, 1889-1963.*

A day for the opening of the session having been decided upon, the members are summoned to attend and the Governor comes to Parliament and delivers a speech outlining Governmental activity during the year and giving some indication of the legislation to be dealt with in the new session.

The first business dealt with in each House is the motion for an Address-in-Reply to the speech of His Excellency. This debate takes precedence over other business and members may speak on any subject they feel needs discussion. The motion having been agreed to, the President and Speaker, supported by other members, wait upon the Governor and present the Address in the form of a Message conveying loyalty to the Sovereign and the thanks of the House.

Throughout the progress of a sitting, a record of the proceedings entitled 'Minutes of the Proceedings' in the Council, and 'Votes and Proceedings' in the Assembly, is maintained and printed copies of this record, signed by the Presiding Officer and Clerk of the House, are circulated daily to members, Government departments, and other interested parties.

These Minutes comprise a record of all proceedings in the House upon which a motion or order of the House has been made. They also include details of questions asked, division lists recording the voting on particular matters and the attendance record of members.

The verbatim record of all speeches is known as Parliamentary Debates or the 'Hansard' report. This record is printed and circulated as a weekly volume.

The Notice Paper consisting of the programme of future business is also printed and circulated daily. This includes questions to be asked by members, motions to be moved, and the Orders of the Day, comprising a list of Bills and motions to be debated. Amendments which members intend to move to the Bills under discussion are also printed on the Notice Paper.

At the appropriate time during a sitting, questions with or without notice, may be put to Ministers of the Crown relating to public affairs, or to other members relating to matters before the House of which the member may have charge.

The majority of questions are of course on notice, as in most cases a reply must be prepared by the Department concerned and considered by the Minister before it is given to the House.

Petitions are sometimes presented to one of the Houses dealing with matters of public concern, and motions may be moved by members to draw attention to grievances or in an endeavour to have some action taken in the public interest.

Papers are ' tabled ' in the House on a variety of subjects, and once tabled they are available to the press and the public.

Allegiance to the Soveriegn must be established before a newly-elected member can sit and vote. This is generally done by taking the Oath of Allegiance, but those who prefer not to take an oath may make an affirmation.

The daily sittings of each House are preceded by the reading of prayers by the Presiding Officer.

The Passage of Legislation. The main business of both Houses is to deal with Bills which are introduced by members.

A ' Bill ' is a draft of a proposed Act of Parliament. The majority of Bills deal with the management of public affairs and are introduced into one of the Houses by a Cabinet Minister, although any member is entitled to introduce a Bill, subject to its conforming with the Standing Orders.

To become an Act a Bill must pass through various stages in each House as follows:

Introduction. Before a Bill can be printed a motion must be passed granting the member leave to introduce the Bill. This is generally agreed to without debate.

The First Reading. When a Bill is ' read ' in the House the long title only is read by the Clerk. Except in certain specific cases the first reading is a formal stage only.

The Second Reading. The member introducing a Bill opens the Second Reading stage by explaining the provisions of the proposed legislation and all members are entitled to make one speech during the subsequent debate. The Second Reading is the most important phase through which a Bill is required to pass, for its whole principle is then at issue and it is at the conclusion of the Second Reading debate that the main vote on the Bill is taken.

Committee proceedings. When a Bill has passed the Second Reading the House goes into ' Committee ' to consider the Bill in detail. In moving into Committee the Presiding Officer leaves the Chair and the Chairman of Committees takes charge from a seat at the Table of the House. The Bill is then dealt with clause by clause and amendments can be moved. If the Bill is amended it must be reprinted before it can be dealt with further.

The Third Reading. Debate may take place at the Third Reading stage and this frequently happens when the subject matter of the Bill is controversial. With the passing of the Third Reading the Bill completes its passage through the House.

Presentation to the other House. The Bill, accompanied by an appropriate Message, is then sent to the other House where the same procedure takes place, with the exception that leave to introduce is unnecessary.

Assent by the Governor. Having passed through both Houses the Bill is presented to His Excellency the Governor who is authorised (with certain exceptions) to grant the Royal Assent on behalf of Her Majesty the Queen. The Bill thereupon becomes an Act of Parliament.

The Parliamentary Officers

The Officers of Parliament, as distinct from the Cabinet, fall into two groups—firstly, Officers who are members of the House in which they serve, and secondly, permanent officials. The presiding Officers and the Chairmen of Committees comprise the first group, and the Clerks of the Houses, with their staffs, form the second group.

The Presiding Officers. The President of the Legislative Council and the Speaker of the Legislative Assembly are elected by the members of their respective Houses, the period of appointment being the term for which the particular member has been elected to Parliament.

The function of the Presiding Officer is to regulate debate, and to ensure that the proceedings are carried out in accordance with Standing Orders and established Parliamentary custom.

He is responsible for conveying the thanks or condolences of the House, the issuing of warrants for executing the orders of the House, such as the commitment of offenders, the attendance of witnesses, or the preparation of writs for the filling of vacancies.

When in the Chair, the Presiding Officers wear the traditional costume, black gown and full bottomed wig.

The Chairman of Committees. The Chairman of Committees for each House is similarly elected by his fellow members. He takes the Chair at the Table of the House whenever the House goes into Committee to consider a Bill in detail.

In the absence of the Presiding Officer this official performs the duties and exercises the authority of the President or Speaker.

The Leader of the Opposition. This members leads the largest Party opposing the Government and holds an important position in the Parliamentary system, as well-informed analysis and constructive criticism of the Government's policies is essential for the democratic functioning of Parliament.

The Whip. The Government and Opposition Parties each appoint a member to be the Whip. The main function of the Whip is to keep in touch with members and to ensure that they are present on all necessary occasions. Each Whip assists the Leader of his Party by arranging the sequence of speakers, providing lists of members for committees, and keeping members informed of future proceedings.

The Clerk of the Parliaments. The senior permanent official is the Clerk of the Parliaments and, as provided by Joint Standing Rules and Orders, this position is occupied by the Clerk of the Legislative Council.

As Clerk of the Parliaments, this official must present to the Governor for the Royal Assent all Bills passed and he is also responsible for the final accuracy of Bills, as Acts of Parliament, prior to their printing for distribution to the public.

The Clerk of the House. The Clerk of each House is the permanent head of his particular department.

This officer is responsible for the correct procedure in connection with legislation, and advises on the interpretation of Standing Orders for the good order and conduct of members, and the rights, privileges, and immunities of Parliament.

The Clerk is also responsible for the compilation of the various records and publications maintained by the House, the adherence to procedure, the custody of documents presented, as well as administrative matters connected with the running of a Government department.

The Usher of the Black Rod and the Sergeant at Arms. These two officials are traditionally a part of Parliaments of the British Commonwealth.

The Usher of the Black Rod in the Legislative Council attends upon His Excellency the Governor on ceremonial occasions such as the opening of Parliament, and he also escorts the President when entering or leaving the Chamber.

The Sergeant at Arms carries the mace and attends upon the Speaker in the Legislative Assembly.

These officers are responsible for the preservation of order in the visitor's galleries, and they also carry out various administrative duties.

Other Parliamentary Departments

Apart from the two Houses which operate as separate departments for staffing and accounting purposes, there are three other sections of the Parliamentary organisation. These are the Joint House department which is responsible for the Parliamentary building, its grounds, and the catering services, and is controlled by the Joint House Committee; the 'Hansard' reporting staff under the direction of the Joint Printing Committee; and the Parliamentary Library, controlled by the Joint Library Committee.

ELECTIONS, ELECTORS ON ROLL AND VOTES RECORDED

The Federal Parliament

General elections for the House of Representatives were held on 25 October 1969. The Liberal-Country Party Government was returned to office with a majority of seven seats, instead of forty seats as in the previous Parliament.

Elections for the Senate took place on 25 November 1967. As a result, Government representation in the Senate from 1 July 1968 was reduced from twenty-nine to twenty-eight. Elections held on 25 October 1969 to fill two vacancies in the Senate (one for the State of Victoria and one for the State of South Australia) resulted in Government representation being reduced to twenty-seven with effect from 1 July 1970

FEDERAL PARLIAMENT—ELECTORS ON ROLL AND VOTES RECORDED

Electoral division	Electors enrolled	Primary votes recorded							Number of voters	
		Liberal Party of Australia	Australian Country Party	Australian Labor Party	Australian Democratic Labor Party	Australia Party	Independent	Informal	Total	Per cent of enrolled electors
HOUSE OF REPRESENTATIVES—GENERAL ELECTION OF 25 OCTOBER 1969										
Canning	51,861	10,722	14,445	20,245	2,617	(a)	(a)	1,506	49,535	95·51
Curtin	53,561	24,855	(a)	17,275	3,533	1,151	3,047	1,177	51,038	95·29
Forrest	49,571	19,955	(a)	22,149	3,332	1,106	(a)	1,132	47,674	96·17
Fremantle	58,316	17,520	(a)	34,336	2,417	(a)	(a)	1,206	55,479	95·14
Kalgoorlie	44,579	14,064	(a)	23,138	1,983	(a)	(a)	744	39,929	89·57
Moore	48,829	9,856	13,968	18,829	2,390	(a)	(a)	1,162	46,205	94·63
Perth	58,727	20,373	(a)	29,309	2,159	(a)	1,308	1,866	55,015	93·68
Stirling	58,163	20,146	(a)	28,468	3,422	1,540	(a)	1,562	55,138	94·80
Swan	60,521	22,982	(a)	28,960	2,608	879	(a)	1,344	56,773	93·81
Total, Western Australia	484,128	160,473	28,413	222,709	24,461	4,676	4,355	11,699	456,786	94·35
SENATE—ELECTION OF 25 NOVEMBER 1967										
Canning	46,796	11,541	11,720	15,410	2,742		357	3,132	44,902	95·95
Curtin	43,969	19,105	2,177	13,918	3,407		687	2,275	41,569	94·54
Forrest	44,634	13,189	6,795	17,581	2,492		307	2,778	43,142	96·66
Fremantle	57,656	17,944	2,340	27,737	3,560		501	3,174	55,256	95·84
Kalgoorlie	36,043	9,546	2,847	15,502	2,067	(a)	250	2,679	32,891	91·25
Moore	46,770	10,907	11,151	16,508	2,785		413	2,641	44,405	94·94
Perth	30,278	9,716	1,311	11,626	2,383		345	2,755	28,136	92·93
Stirling	75,527	21,978	3,315	34,559	6,325		635	4,694	71,506	94·68
Swan	60,284	17,313	3,206	26,992	4,826		556	3,704	56,597	93·88
Total, Western Australia	441,957	131,239	44,862	179,833	30,587	....	4,051	27,832	418,404	94·67

(a) No candidate.

The State Parliament

At the conjoint election for the Legislative Council and the Legislative Assembly which was held on 23 March 1968 the Liberal-Country Party Government, led by the Honourable (now Sir) David Brand, was returned to office, its majority in the Legislative Assembly being reduced from eight seats to five seats. Government representation in the Legislative Council was unchanged.

All Ministers holding office prior to the election were re-elected to Parliament and retained the portfolios held by them in the previous Parliament.

LEGISLATIVE COUNCIL AND LEGISLATIVE ASSEMBLY CONJOINT ELECTION OF 23 MARCH 1968

LEGISLATIVE COUNCIL

Electoral area (*a*) and province	Electors on roll			Electoral area (*a*) and province	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (*continued*)—			
Metropolitan (*b*)	28,371	34,248	62,619	South-East (*b*)	9,889	8,562	18,451
North Metropolitan	30,785	33,293	64,078	South-West (*b*)	9,133	8,487	17,620
North-East Metropolitan (*b*)	30,320	32,319	62,639	Upper West (*b*)	9,969	8,901	18,870
South Metropolitan	25,113	26,030	51,143	West	9,818	9,824	19,642
South-East Metropolitan	24,340	27,331	51,671				
Total	138,929	153,221	292,150	Total	76,428	70,983	147,411
Agricultural, Mining and Pastoral Area—				North-West-Murchison-Eyre Area—			
Central (*b*)	9,310	8,439	17,749	Lower North	2,516	1,937	4,453
Lower Central	9,017	8,413	17,430	North (*b*)	3,015	2,093	5,108
Lower West (*b*)	9,665	9,233	18,898				
South (*b*)	9,627	9,124	18,751	Total	5,531	4,030	9,561
				WHOLE STATE	220,888	228,234	449,122
Electors on roll in contested provinces					101,589	106,828	208,417
Electors on roll in uncontested provinces					119,299	121,406	240,705
Total number of electors on roll					220,888	228,234	449,122
Total number of votes recorded					(*c*)	(*c*)	(*d*)192,342
Percentage of votes recorded to electors on roll in contested provinces					(*c*)	(*c*)	92·29

LEGISLATIVE ASSEMBLY

Electoral area (*a*) and district	Electors on roll			Electoral area (*a*) and district	Electors on roll		
	Males	Females	Persons		Males	Females	Persons
Metropolitan Area—				Agricultural, Mining and Pastoral Area (*continued*)—			
Ascot	6,028	6,379	12,407	Collie	2,944	2,708	5,652
Balcatta	7,012	7,117	14,129	Dale	3,579	3,553	7,132
Belmont	5,953	6,271	12,224	Darling Range	3,347	3,510	6,857
Canning	6,974	7,306	14,280	Geraldton	3,106	3,048	6,154
Clontarf	5,920	6,839	12 759	Greenough (*e*)	3,497	2,937	6,434
Cockburn	7,030	6,791	13,821	Kalgoorlie (*e*)	3,239	2,891	6,130
Cottesloe	5,551	7,441	12,992	Katanning (*e*)	2,945	2,772	5,717
East Melville	6,375	6,976	13,351	Merredin-Yilgarn	3,362	2,743	6,105
Floreat	5,747	6,189	11,936	Moore	3,366	2,916	6,282
Fremantle	5,845	5,872	11,717	Mount Marshall (*e*)	3,213	2,788	6,001
Karrinyup	5,641	6,287	11,928	Murray	3,478	3,173	6,651
Maylands	5,579	6,396	11,975	Narrogin (*e*)	3,128	2,933	6,061
Melville	5,863	6,391	12,254	Northam	3,044	2,878	5,922
Mirrabooka	6,720	7,068	13,788	Roe	3,679	3,139	6,818
Mount Hawthorn	6,150	6,400	12,550	Stirling (*e*)	3,231	2,910	6,141
Mount Lawley	5,788	6,814	12,602	Toodyay	2,892	2,761	5,653
Nedlands	5,610	6,994	12,604	Vasse (*e*)	2,894	2,885	5,779
Perth	6,043	6,444	12,487	Warren	3,249	2,926	6,175
South Perth	5,853	6,670	12,523	Wellington (*e*)	3,017	2,832	5,849
Subiaco	5,420	7,180	12,600				
Swan	6,040	6,205	12,245				
Victoria Park (*e*)	5,593	6,516	12,109				
Wembley (*e*)	6,194	6,675	12,869	Total	76,428	70,983	147,411
Total	138,929	153,221	292,150	North-West-Murchison-Eyre Area—			
Agricultural, Mining and Pastoral Area—				Gascoyne	1,421	1,153	2,574
				Kimberley	1,623	1,164	2,787
Albany	2,717	3,075	5,792	Murchison-Eyre (*e*)	1,095	784	1,879
Avon (*e*)	3,053	2,773	5,826	Pilbara (*e*)	1,392	929	2,321
Blackwood	2,990	2,676	5,666				
Boulder-Dundas (*e*)	3,288	2,928	6,216	Total	5,531	4,030	9,561
Bunbury	3,170	3,228	6,398				
				WHOLE STATE	220,888	228,234	449,122
Electors on roll in contested districts					175,109	184,681	359,790
Electors on roll in uncontested districts					45,779	43,553	89,332
Total number of electors on roll					220,888	228,234	449,122
Total number of votes recorded					(*c*)	(*c*)	(*f*)331,325
Percentage of votes recorded to electors on roll in contested districts					(*c*)	(*c*)	92·09

(*a*) As defined in the *Electoral Districts Act, 1947-1965.* (*b*) Uncontested Province. (*c*) Not available. (*d*) Includes 8,631 informal votes. (*e*) Uncontested District. (*f*) Includes 10,255 informal votes.

The table on page 110 shows the number of electors enrolled in each Province and in each District. The numbers of effective and informal votes recorded throughout the State at the election are also shown.

It will be seen from the table that the number of electors enrolled in each District in the Metropolitan Area was approximately twice the number in each District in the Agricultural, Mining and Pastoral Area. This is accounted for by a requirement of the *Electoral Districts Act, 1947–1965* that the Electoral Commissioners, in determining the quota of electors for each District, should reckon every two electors in the Metropolitan Area as one elector, at the same time giving full representation to each elector in the Agricultural, Mining and Pastoral Area. The number of Districts in the North-West-Murchison-Eyre Area was fixed by the Act at four.

LEGISLATION DURING 1968

The Federal Parliament

The legislative enactments of the Commonwealth Parliament in 1968 are listed in summarised form on pages 69-74 of the *Official Year Book of the Commonwealth of Australia*, No. 55—1969.

The State Parliament

During the first, second and third periods of the first session of the twenty-sixth Parliament, which lasted from 25 July to 5 November 1968, 25 March to 6 May 1969, and 17 June to 19 June 1969, respectively, the Western Australian legislature enacted 118 Public Statutes and, in addition, dealt with six Bills which were introduced but not passed.

The full text of the legislation enacted is contained in the volumes of *The Acts of the Parliament of Western Australia*, to which reference should be made if complete details are required. To provide a brief review of the Statutes of 1968 (*i.e.* those enacted during the first period of the session) a short summary of the main provisions is given in this section. Supply, Appropriation and Loan Acts are listed without further detail.

Acts Passed during 1968

Aerial Spraying Control Act Amendment Act—Widens the interpretation of the term ' owner ' used in relation to an aircraft. Deletes the provision which placed liability on the owner of an aircraft should it be used for aerial spraying by a pilot who is not the holder of the prescribed pilot chemical rating certificate, even though the spraying was carried out without the owner's knowledge. Varies the provisions relating to the lodging by the owner of a security for the protection of persons who suffer any loss or damage to their property due to aerial spraying. Makes other miscellaneous provisions.

Agricultural Products Act Amendment Act—Increases the number of members of the Apple Sales Advisory Committee from seven to eight and the growers' representatives on the committee from three to four. Constitutes the Stone-fruit Sales Advisory Committee and specifies its functions. Extends the provisions of the Act to include stone-fruit, in addition to apples, pears and citrus. Deletes the terminal date in the Act relating to the controls over such fruit. Makes other miscellaneous provisions.

Appropriation Act, (Consolidated Revenue Fund); Appropriation Act, (General Loan Fund)

Argentine Ant Act—Repeals the *Argentine Ant Act, 1959*. Provides for the control, prevention and destruction of Argentine Ants.

Art Gallery Act Amendment Act—Extends the powers of The Western Australian Art Gallery Board to exhibit works of art and to propagate art. Authorises the Board to establish, control and manage branch art galleries in any part of the State.

Artificial Breeding Board Act Amendment Act—Requires the Artificial Breeding Board to forward to the Minister an annual report of its operations for each year ended 31 December in lieu of 30 June, as formerly.

Builders' Registration Act Amendment Act—Excludes farm buildings, other than those for residential purposes, from the operations of the Act. Prohibits an owner-builder from selling within eighteen months of the issue to him of a building licence the land on which the building was constructed, without the consent in writing of the Builders' Registration Board of Western Australia. Varies the provisions relating to registration of persons as registered builders. Provides that where the registration of a partnership, company or body corporate has been cancelled or suspended by the Board, the registration of the builder nominated to manage or supervise the building work may also be cancelled or suspended. Makes other miscellaneous provisions.

Child Welfare Act Amendment Act—Authorises the Director of Child Welfare to promote the welfare of a child whether a ward of the Department or not. Empowers a Children's Court to impose a fine not exceeding $500 on a convicted child or to discharge the child on his own bond, in addition to measures previously available to the Court. Provides that no child under the age of sixteen years may engage in commercial advertising, by radio, television or newspaper, unless a licence for that purpose has been issued by the Minister. Clarifies the jurisdiction of Children's Courts and makes other miscellaneous provisions.

Coal Miners' Welfare Act Amendment Act—Extends the functions of The Coal Miners' Welfare Board of Western Australia in the provision of amenities. Validates certain payments made by the Board from The Coal Miners' Welfare Fund.

Commonwealth and State Housing Agreement Act Amendment Act—Provides that the statutory floating charge over the assets of a building society or other approved institution which has entered into a loan agreement with the State for the purposes of the Act may, under specified conditions, be replaced with a specific or limited charge or, alternatively, that part of the assets of the institution may be released from the floating charge.

Cremation Act Amendment Act—Defines, for the purposes of the Act, ' body ', ' dead human body ' or ' human body ' to mean the body of a deceased person, including the body of an infant of not less than seven months' gestation that was still-born.

Dried Fruits Act Amendment Act—Increases from one-sixteenth of a penny per pound to nine-hundredths of one cent per pound the maximum rate of contribution required to be paid annually to the Dried Fruits Board by a grower on dried fruit produced by him.

Education Act Amendment Act—Authorises the payment to efficient non-government schools of a subsidy for the provision of reference books pertaining to courses of study leading to matriculation and a subsidy for the purchase of text books for secondary students. Increases from $10 to $20 the contribution towards tuition fees payable for a student in any year of a course of primary education at an efficient non-government school. Extends the Minister's powers in relation to compulsory school attendance.

Esperance Port Authority Act—Establishes a body corporate by the name of the Esperance Port Authority. Provides that the Port Authority shall consist of five members, appointed by the Governor. Sets out the powers and duties of the Port Authority and makes other miscellaneous provisions.

Firearms and Guns Act Amendment Act—Amends the currency of a licence issued under the Act to provide that a licence shall, unless cancelled or revoked, be valid for a period of twelve months from the date of issue. Deletes the exemption previously granted to a member of a rifle club in relation to a licence. Makes other miscellaneous provisions.

Fruit Cases Act Amendment Act—Makes amendments consequential to those made to the Agricultural Products Act. Adds stone fruit to the types of fruit listed in the definition of ' direct buyer ' and of ' grower ', and deletes reference to a termination date for the provisions relating to registration of direct buyers.

Geraldton Port Authority Act—Establishes a body corporate by the name of the Geraldton Port Authority. Provides that the Port Authority shall consist of five members, appointed by the Governor. Sets out the powers and duties of the Port Authority and makes other miscellaneous provisions.



THE LEGISLATIVE COUNCIL CHAMBER

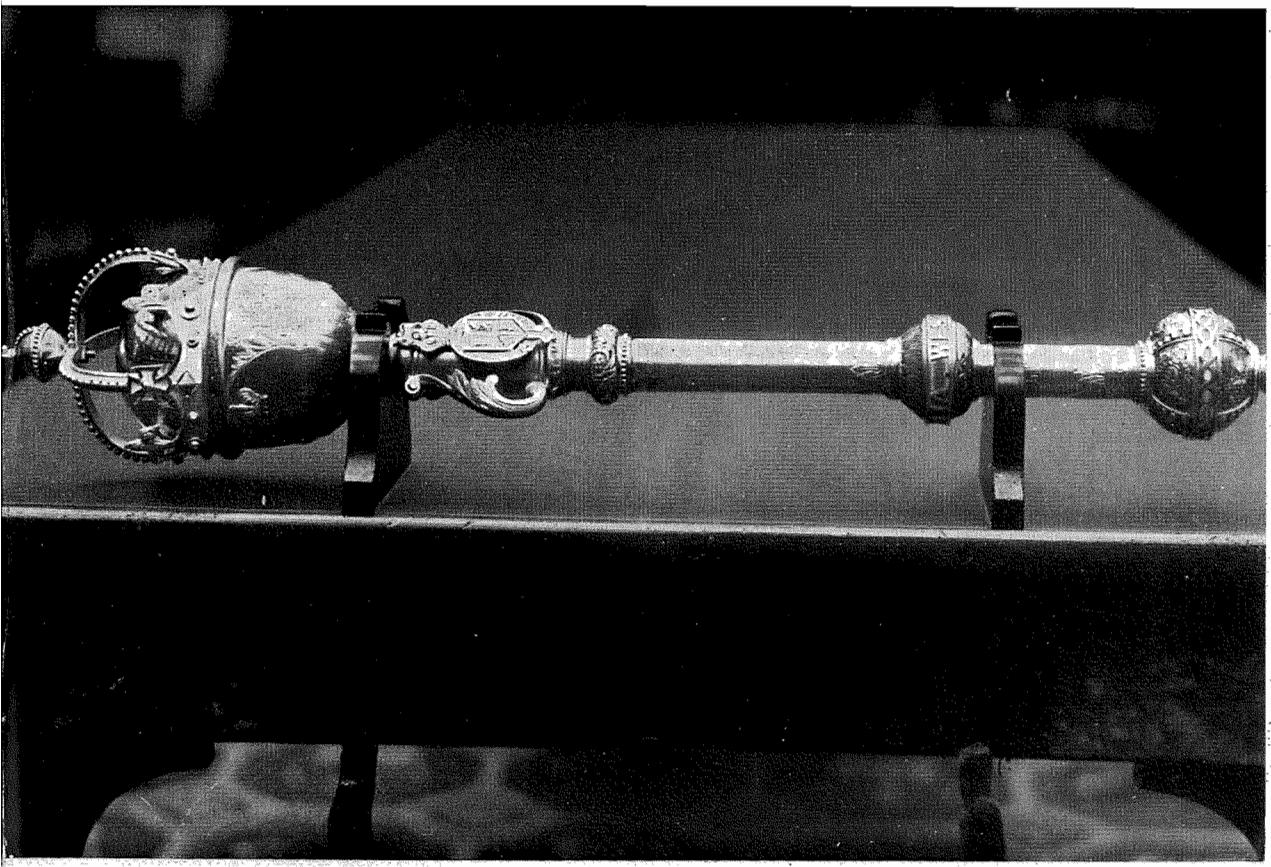
This view of the Legislative Council Chamber shows the President's Chair, surmounted with the Crown, in front of which is the Table of the House in two sections—the desk occupied by the Clerk of the House and his assistant, and the Table upon which papers presented to Parliament are laid. The ceremonial of the Opening of Parliament takes place in this Chamber, His Excellency the Governor taking the Chair and delivering his speech in the presence of members of both Houses and a large number of visitors.

On the Table can be seen the sand-glass which measures the two minutes during which the bells are rung to summon members when a division to determine a vote of the House has been called. The benches on the right hand side, as viewed from the Chair, are occupied by Ministers of the Crown. At the foot of the picture, but not shown, is the Bar of the House, beyond which no strangers may proceed without the consent of the House, and at which persons summoned for a breach of privilege would appear.



Above—The Black Rod

Below—The Mace



THE BLACK ROD

Symbol of authority of the Usher of the Black Rod who is responsible for the maintenance of order in the Legislative Council, the Black Rod now in use was specially designed for Western Australia by the Crown Jeweller in London. It was presented to the House to mark the occasion of the visit to the State of Her Majesty Queen Elizabeth the Second in March 1954.

THE MACE

In the Legislative Assembly the Mace is the symbol of authority of the Speaker and of the authority of the House. When the Speaker is in the Chair the Mace rests on the Table of the House. The present Mace was first used in the Legislative Council in 1887 and was transferred to the Legislative Assembly on the establishment of responsible government.

Hairdressers Registration Act Amendment Act—Provides that all registered hairdressers, whether practising or not, shall pay the prescribed annual registration fee. Clarifies the provisions relating to the suspension of registration for non-payment of fees.

Health Act Amendment Act—Declares that it is an offence for an occupier of premises to dispose of rubbish on those premises in such a manner as to cause a nuisance. Provides that where a house is declared by a local authority to be unfit for human habitation, the supplying authority shall disconnect electricity, gas or water services if so required by the local authority. Empowers the Commissioner of Public Health to order the suspension of specified operations in any premises used for the storage, manufacture, preparation, processing, inspection, handling, packaging or sale of food where he is satisfied that contamination or the possibility of contamination of food exists. Makes other miscellaneous provisions.

Housing Advances (Contracts with Infants) Act—Enables an infant who has attained the age of eighteen years to enter into a contract with a specified type of lending authority for moneys to be advanced or lent by it to him for the purpose of erecting or purchasing a dwelling house for his occupation, and to execute a mortgage or other instrument by way of security for repayment, to the same extent as if the infant were of full age.

Housing Loan Guarantee Act Amendment Act—Increases (to $10,000 for a new house south of the twenty-sixth parallel and to $13,000 for a new house north of the twenty-sixth parallel) the maximum loan which an approved institution may make to a borrower for which a guarantee may be provided under the Act by the Treasurer.

Illicit Sale of Liquor Act Amendment Act—Doubles the monetary penalties for unlawful dealing in liquor.

Industrial Arbitration Act Amendment Act—Re-establishes the power of The Western Australian Industrial Commission to determine and declare a basic wage for male workers and for female workers throughout the State. Stipulates the matters which are to be taken into consideration by the Commission in determining the basic wage. Provides for the determination of equal pay for male and female workers performing work of the same or a like nature and of equal value. Makes other miscellaneous provisions.

Iron Ore (Hamersley Range) Agreement Act Amendment Act—Approves the second supplementary agreement between the State of Western Australia and Hamersley Iron Pty. Limited covering the expansion of operations of the company in the Paraburdoo area and the establishment, if feasible, of a plant for producing metallised agglomerates.

Iron Ore (Hanwright) Agreement Act Amendment Act—Complements the *Iron Ore (Hamersley Range) Agreement Act Amendment Act*. Approves the first supplementary agreement between the State of Western Australia and Joint Venturers, Hancock Prospecting Pty. Ltd. and Wright Prospecting Pty. Ltd. Excises from the mining areas held by the Joint Venturers under the principal agreement the portion added under the complementary Act to those held by Hamersley Iron Pty. Limited. Provides that Mount Bruce Mining Pty. Limited (a combination of Hanwright Iron Mines and Hamersley Iron Pty. Limited) may, by notice to the State and the Joint Venturers, take over the rights and obligations of the Joint Venturers under the principal agreement.

Irrigation (Dunham River) Agreement Act—Approves an agreement between the State and Goddard of Australia Pty. Ltd. authorising the company to construct a dam on Arthur Creek and, subject to certain conditions, a further dam on the Dunham River for the purposes referred to in the agreement.

Justices Act Amendment Act—Repeals the provisions relating to appointment of Police Magistrates and Resident Magistrates. Requires the leave of a Magistrate to be obtained for the issue of a warrant of execution or commitment where a period of twelve months has elapsed since the final hearing and determination of a case. Varies the provisions relating to the time at which a person admitted to bail is required to appear for trial. Validates proceedings against a young person where the the Justices of the Peace hearing the complaint believed that the person was of or over the age of eighteen years, but provides that the case may be re-heard in a Children's Court. Makes other miscellaneous provisions.

Kewdale Lands Development Act Amendment Act—Varies the provisions relating to the acquisition by The Metropolitan Region Planning Authority of land specified in the Act. Amends the description of land acquired for development and of land excised from Kewdale Marshalling Yards for development.

Kwinana Loop Railway Act—Authorises the construction of a loop line of railway of 5 miles 36 chains, primarily to serve a Co-operative Bulk Handling Limited grain storage installation at Kwinana.

Land Act Amendment Act—Provides that the Board established under the Act shall give preference to a discharged member of the forces in determining applications for the same land, if the ability and capacity of the ex-serviceman to develop the land is equal to or not less than that of any other applicant.

Land Tax Act Amendment Act—Establishes new scales of land tax for improved and unimproved land applicable from 1 July 1969.

Land Tax Assessment Act Amendment Act—Provides that if several estates or parcels of land are held by one owner, the separate aggregates of such unimproved land or improved land shall each be regarded as one estate for the purpose of taxation. Makes provision for rebates of land tax on unimproved land under certain conditions where a dwelling house is subsequently erected on the land. Provides for alleviation of tax under specified circumstances for owners of land for which the unimproved value has increased due to rezoning. Makes other miscellaneous provisions.

Liquid Petroleum Gas Act Amendment Act—Provides that the standard for gas for sale fixed under the Act may be declared to apply ' generally or in a particular case or particular classes of cases '.

Loan Act

Local Government Act Amendment Act—Varies the provisions relating to compensation to a person whose land is injuriously affected by the alteration by a council of the level of the surface of the adjacent street. Authorises a council to sell to the Metropolitan Water Supply, Sewerage, and Drainage Board any sewers and works connected with sewerage that have been constructed with money borrowed by the council. Increases from 7·5 cents in the dollar to 15 cents in the dollar the maximum general rate on the unimproved value of land which a council may impose subject to the approval of the Minister. Makes other miscellaneous provisions.

Mangles Bay Railway Act—Authorises the construction, at some future date, of a railway of 3 miles 17 chains from the Kwinana Loop Railway into the Point Peron area to Mangles Bay.

Medical Act Amendment Act—Provides that a suitably qualified person serving as a medical officer in a visiting naval, military or air force may be registered as a medical practitioner under this Act at the discretion of the Minister.

Mental Health Act Amendment Act—Removes the need for a written application for the admission or discharge of a person who has sought admission to an approved hospital of his own volition or, if under the age of eighteen years, on the request of one of his parents or of his guardian.

Metropolitan Region Town Planning Scheme Act Amendment Act—Varies the provisions relating to compensation for ' injurious affection '. Provides for the determination of the value of land so affected if The Metropolitan Region Planning Authority elects to acquire the land instead of paying compensation.

Metropolitan Region Town Planning Scheme Act Amendment Act (No. 2)—Exempts The Metropolitan Region Planning Authority from payment of rates or taxes on land acquired for the purposes of the Act while the Authority is the owner of the land, except in cases where rent is received for any such land that is leased by the Authority.

Metropolitan Water Supply, Sewerage, and Drainage Act Amendment Act—Authorises the Metropolitan Water Supply, Sewerage, and Drainage Board to acquire from a local

authority sewers and works connected with sewerage. Permits the apportionment of excess water charges where a change in ownership or occupancy of rated land has occurred. Makes other miscellaneous provisions.

Mines Regulation Act Amendment Act—Varies the provisions relating to employment in or about a mine on a Sunday. Provides that a workman shall not be employed on a Sunday or on a sixth shift underground without his consent. Makes other miscellaneous provisions.

Mining Act Amendment Act—Authorises the holder of a miner's right to enter a mineral claim and prospect on it providing he does not interfere with or cause damage to the actual workings of the claim holder. Permits, subject to certain conditions, the holder of a miner's right to occupy as a prospecting area Crown land already occupied under another miner's right.

Motor Vehicle (Third Party Insurance Surcharge) Act Amendment Act—Extends the categories of vehicles for which no surcharge on insurance premiums is required to be paid.

Nickel Refinery (Western Mining Corporation Limited) Agreement Act—Approves an agreement between the State and Western Mining Corporation Limited relating to the establishment of a nickel refinery at Kwinana and a nickel smelter at Kambalda or Kalgoorlie.

Nurses Act—Repeals the *Nurses Registration Act, 1921-1959.* Consolidates and amends the law relating to the nursing profession in Western Australia.

Parliamentary Superannuation Act Amendment Act—Varies the provisions relating to additional State contributions to the Parliamentary Superannuation Fund, in the event of insufficient moneys in the Fund, to provide that the deficiency reported by the Government Actuary shall be cleared by annual payments from the Consolidated Revenue Fund over a period of twenty-five years.

Police Act Amendment Act—Adds cannabis to the dangerous drugs which are subject to the provisions of the Act. Makes other miscellaneous provisions.

Public Trustee Act Amendment Act—Increases the powers and duties of the Public Trustee in relation to estates of infirm persons and to uncared-for property. Authorises the appointment of a Deputy Public Trustee. Increases from $1,000 to $5,000 the maximum value of an unadministered estate which the Public Trustee may elect to administer without procuring a grant of probate or administration. Authorises the Public Trustee, with the prior approval of the Minister, to invest portion of the moneys in the common fund in acquiring land and erecting a building on it for the purpose of providing office accommodation for the Public Trustee and persons appointed under the Act.

Railways Discontinuance and Land Revestment Act—Authorises the discontinuance of portions of specified railways to a total length of approximately 5 miles 60 chains 70 links. Revests the former railway land in the Crown.

Reserves Act—Provides for the excision of varying portions of seven Class 'A' reserves and amends the purpose of two Class 'A' reserves. Cancels one reserve held in trust for the purpose of a racecourse under a Crown Lease and revests the land in the Crown.

Road and Air Transport Commission Act Amendment Act—Provides an alternative basis for assessing public vehicle licence fees for omnibuses and aircraft.

Royal Commissions Act—Repeals the *Royal Commissioners' Powers Act, 1902-1956.* Empowers the Governor to appoint any person or persons to be a Royal Commission. Sets out the powers of the Commission and the penalties for offences against the Act. Provides protection to Commissioners, witnesses and persons appearing before a Commission. Makes other miscellaneous provisions.

Rural and Industries Bank Act Amendment Act—Removes the limitation on the number of dwelling houses for which the Commissioners may enter into contracts for the construction on acquired land in any year. Relieves the Commissioners of the obligation to prepare an analysed cash account annually.

Scientology Act—Proscribes the activities of the body known as the Hubbard Association of Scientologists International and of every associated body.

Stamp Act Amendment Act—Authorises the Commissioner of Stamps to assess the market value of a motor vehicle where that value is not stated in writing by the applicant for a licence or the transfer of a licence. Removes doubt as to liability for stamp duty on insurance policies issued out of the State in respect of property in Western Australia. Exempts from stamp duty receipts given for the proceeds of the sale of gold bullion. Makes other miscellaneous provisions.

State Housing Act Amendment Act—Repeals the *McNess Housing Trust Act, 1930-1965*. Transfers all powers, obligations, assets and liabilities of the Trust to The State Housing Commission. Increases from $6,000 to $8,000 the maximum allowable advance to a worker for the erection or purchase of a house south of the twenty-sixth parallel of latitude. Makes other miscellaneous provisions.

State Trading Concerns Act Amendment Act—Empowers The West Australian Meat Export Works, subject to the approval of the Governor, to borrow moneys from time to time for specified purposes. Provides that the Treasurer, on behalf of the State, may guarantee repayment of the principal and interest on moneys borrowed by the Concern.

Stock Diseases (Regulations) Act—Repeals and replaces the *Stock Diseases Act, 1895-1967*. Enables all necessary measures for the eradication and control of diseases in livestock to be provided by Regulations and Orders in Council.

Superannuation and Family Benefits Act Amendment Act—Extends the type of investment permitted of the Fund to include the acquisition from the Government Employees' Housing Authority of land upon which houses are erected and to lease, sell or otherwise dispose of to the Authority the land so acquired.

Supply Act

Taxi-cars (Co-ordination and Control) Act Amendment Act—Establishes the Tax Control Board as a body corporate. Provides for the issue of a licence for a taxi-car to operate in a portion only of a control area. Requires the approval of the Minister for the transfer of a licence which has been in force for less than five years from the date of issue. Varies the provisions relating to the issue of licences. Provides for the registration of part-time drivers and makes other miscellaneous provisions.

Timber Industry Regulation Act Amendment Act—Varies the method of selection of workmen's inspectors, extends their powers and increases the term of appointment from two years to three years. Amends various interpretations for the purposes of the Act to take account of new processes and machinery. Makes other miscellaneous provisions.

Traffic Act Amendment Act—Introduces a points demerit system. Empowers the Commissioner of Police to issue, in specified circumstances, a learner's permit to a person who has attained the age of sixteen years. Provides that a driver's licence issued in another State or overseas to a person temporarily within Western Australia is valid until the expiration of one year after the holder's arrival in the State or the licence expires, whichever first occurs. Authorises the issue of ' traffic infringement notices ' with a statutory fixed penalty for each specified offence and makes other miscellaneous provisions.

Traffic Act Amendment Act (No. 2)—Makes it an offence for a person to drive a motor vehicle if the driver has a percentage of alcohol in his blood of, or exceeding, 0·08 per cent. Provides for the preliminary testing of such percentage by means of breath analysing equipment approved by the Minister. Makes other miscellaneous provisions.

Trustees Act Amendment Act—Authorises a trustee to invest in the common trust fund of a trustee corporation trust funds held in trust by him. Amends the provisions relating to the remuneration of trustees. Makes other miscellaneous provisions.

Western Australian Institute of Technology Act Amendment Act—Vests in the Institute, a body corporate, in lieu of the Council of the Institute as previously provided, Institute land specified in the Act. Clarifies the provisions relating to the power of the Council

to charge tuition fees. Advances the date for the appointment of the full Council, to succeed the Interim Council, to a date not earlier than 1 January 1969 and not later than 31 March 1969. Establishes an organisation of enrolled students to be known as the Student Guild.

Western Australian Marine Act Amendment Act—Increases the penalties for specified offences under the Act. Requires the certificated master of the ship and the certificated engineer to be at their respective specified duty stations when any harbour and river ship is approaching, berthing at, or leaving any jetty. Provides that the master of a coast-trade ship shall report any serious danger to navigation met with and shall, except in specified circumstances, render assistance to persons in distress on or from a vessel or aircraft. Makes other miscellaneous provisions.

Wheat Industry Stabilization Act—Repeals the *Wheat Industry Stabilization Act, 1963*. Authorises the operation in Western Australia of the *Wheat Industry Stabilization Act* 1968 (Commonwealth) relating to the marketing of wheat harvested during the seasons 1968-69 to 1974-75.

THE JUDICATURE

The two major factors in the development of the Australian legal system have been its British origin and the Commonwealth Constitution of 1900. This statute, an Act of the Imperial Parliament in London, limited the legislative power of State Parliaments in some respects and created a federal legislature. Since 1942, however, the Imperial Parliament can legislate for Australia only at Australia's request. The sources of Australian law of today are, therefore, found in Commonwealth and State legislation, in some Imperial legislation, and in the common law. Independence of the judiciary is an essential part of the Australian legal system.

Particulars of Commonwealth Courts and State Courts of Western Australia which are presided over by one or more Judges are given below. Further details of courts appear in Chapter V, Part 6 and Chapter X, Part 1.

Commonwealth Courts

Under the provisions of section 71 of the Commonwealth Constitution the judicial power of the Commonwealth is vested in a Federal Supreme Court called the High Court of Australia and in such other courts as the Parliament creates or invests with federal jurisdiction.

The *High Court of Australia* is the principal Commonwealth Court and has both original and appellate jurisdiction. The Court is constituted by the *Judiciary Act* 1903–1969 and consists of a Chief Justice and six other Justices. The Principal Registry is at Melbourne, Victoria and there is a District Registry in each of the other State capital cities, where sittings of the Court are held from time to time as required. A Full Court may consist of any two or more Justices sitting together, but the Act specifies cases where a Full Court shall be comprised of not less than three Justices and, in some circumstances, a greater number. The High Court is the ultimate court of appeal in Australian jurisdiction but formerly, appeal from a judgment of the High Court could be made, subject to leave being given, to the Judicial Committee of the Privy Council in London. From 1 September 1968, when the *Privy Council (Limitation of Appeals) Act* 1968 became operative, applications for leave of appeal from a decision of the High Court may be made only in respect of purely State matters as distinct from matters involving the Australian Constitution or Federal laws.

The *Commonwealth Industrial Court* was established by an amendment of 1956 to the Conciliation and Arbitration Act which gives the Court power to deal with judicial matters, as distinct from the functions of conciliation and arbitration performed by the Commonwealth Conciliation and Arbitration Commission. The Commonwealth Industrial Court comprises a Chief Judge and not more than seven other Judges, in terms of the *Conciliation and Arbitration Act* 1904–1969. The Act provides that, except in certain specified circum-

stances, the jurisdiction of the Court shall be exercised by not less than two Judges. Although, in general, decisions of the Industrial Court are final, appeal may be made to the High Court, subject to a grant of leave by the High Court.

The *Federal Court of Bankruptcy* is constituted under the *Bankruptcy Act* 1966-1969 which provides that the Court shall consist of a Judge or two Judges. The Act also extends jurisdiction in bankruptcy to certain Courts of the States, and in Western Australia it is exercised by the Supreme Court of the State.

State Courts of Western Australia

The *Supreme Court of Western Australia*, as constituted under the *Supreme Court Act, 1935–1964*, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court is exercised by a single Judge unless it is provided that an action must be brought before a Full Court. Any two or more Judges together comprise a Full Court except at a sitting as a court of criminal appeal, when there must be an uneven number of Judges. In addition to appeals in criminal cases, matters within the jurisdiction of the Full Court include applications for a new trial or to set aside a judgment, cases referred by a Judge for the consideration of the Full Court and special cases where all parties agree that a hearing should be before the Full Court. The Act provides for sittings of the Court as a circuit court in proclaimed districts and enables the appointment of days in each year for hearings in these districts. Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act* 1903–1969 (Commonwealth), and may also be made direct to the Privy Council.

At 31 December 1969 the composition of the Supreme Court was as shown below.

Chief Justice—
The Honourable Sir Lawrence Jackson, K.C.M.G.

Senior Puisne Judge—
The Honourable J. E. Virtue

Puisne Judges—
The Honourable R. V. Nevile
The Honourable John Hale
The Honourable F.T.P. Burt
The Honourable J.M. Lavan
The Honourable J. L. C. Wickham

The *Western Australian Industrial Appeal Court* is constituted under the provisions of the *Industrial Arbitration Act Amendment Act* (*No. 2*), *1963*, which came into operation on 1 February 1964. The Act abolishes the former Court of Arbitration. The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction. (Reference to the constitution, powers and functions of The Western Australian Industrial Commission is made in Chapter X, Part 1.)

OVERSEAS REPRESENTATION IN WESTERN AUSTRALIA

At 31 December 1969 there were twenty countries represented in Western Australia by a consular agent, vice-consul, consul, consul-general, or deputy high commissioner, as follows.

Austria—R. Allingham, C.B.E., Consul, Queen's Chambers, 97 William Street, Perth 6000.

Belgium—E. Blanckensee, Consul, 81 St George's Terrace, Perth 6000.

Chile—F. G. Prochelle, Consul-General, 187 Riverton Drive, Shelley, Perth 6155.

China—Dr W. C. P. Chen, Consul, G.P.O. Box M975, Perth 6001.

Denmark—J. C. Garnsworthy, Consul, 25 Henry Street, Fremantle 6160.

El Salvador—L. Lopez-Duke, Consul, c/o Krantz and Sheldon, 196 Adelaide Terrace, Perth 6000.

Finland—A. J. Shears, Consul, ' Casablanca ', 196 Adelaide Terrace, Perth 6000.

France—G. Lefevre, Consular Agent, 610 Murray Street, West Perth 6005.

Germany, Federal Republic of—T. A. James, Consul, National Mutual Life Building, 81 St George's Terrace, Perth 6000.

Greece—C. P. Belegris, Consul, 132 Mounts Bay Road, Perth 6000.

Guatemala—P. Smetana, Consul, Lot 60 Collingwood Street, Osborne Park 6017.

Italy—Dr S. Terenzio, Consul, 18 Walker Avenue, West Perth 6005.

Japan—K. Okazaki, Consul-General, 36 King's Park Road, West Perth 6005.

Netherlands—M. van Oordt, Consul, 27-29 St George's Terrace, Perth 6000.

Norway—E. A. M. Wright, Consul, 88 Thomas Street, West Perth 6005.

Philippines—G. V. Mummery, Consul, 1095 Hay Street, Perth 6000.

Portugal—C. G. Dudley, Vice-Consul, 98 St George's Terrace, Perth 6000.

Sweden—V. O. Fabricius, Consul, 89 St George's Terrace, Perth 6000.

United Kingdom—B. A. F. Pennock, Deputy High Commissioner, A.N.Z. House, 84 St George's Terrace, Perth 6000.

United States of America—J. A. Lacey, Consul, M.L.C. Building, 171-177 St George's Terrace, Perth 6000.

In addition, the Grand Duchy of Luxembourg is represented in Western Australia by the Consul for Belgium.

STATE REPRESENTATION OVERSEAS AND IN OTHER STATES

Western Australia has been represented in the United Kingdom by an Agent-General since 1892, the first appointment to the post being that of Sir Malcolm Fraser. An Office is maintained at Western Australia House, 115 Strand, London, W.C.2. Its functions include the representation of all government departments which have business in Britain and Europe, the purchase of government stores and equipment, the attraction of migrants, the encouragement of overseas private investment in Western Australia, and the provision of various types of assistance to visitors from Western Australia. In addition, the Office acts as agent for the State Treasury and as a receiving agency for The Rural and Industries Bank of Western Australia. Western Australia's European Public Relations Office also operates from Western Australia House. The Agent-General for Western Australia, the Honourable G. P. Wild, M.B.E., is the personal representative in Britain of the State Premier.

Branches of the Tourist Bureau have been established in New South Wales at 128 King Street, Sydney, in Victoria at 2 Royal Arcade, Melbourne, in South Australia at 34 King William Street, Adelaide, and in the Northern Territory at Western Australia House, Cavenagh Street, Darwin.

THE LOCAL GOVERNMENT SYSTEM

The function of local government in Western Australia is performed by a number of Councils (or, in special circumstances, by Commissioners appointed by the Governor) exercising powers conferred by the Parliament of the State. Each of the Councils consists of members elected by a local community and is responsible for the provision of many of the services necessary for the organisation and welfare of the community which it represents.

As early as 1838 an Act providing a measure of local government was passed and under its provisions the management and control of the town of Perth was vested in a body of trustees. The first elected Town Trust was constituted at Perth in 1842 under an Act of 1841 for the ' Improvement of Towns in Western Australia '. The Trust was dissolved in 1858 and replaced by a City Council, the town of Perth having been constituted a city when it became the seat of a Bishop in 1856.

Legislation was enacted in 1871 establishing Municipalities and Road Boards throughout the Colony. The existing Statute regulating the operations of the local authorities is the *Local Government Act, 1960–1969*, which is administered through a Department of Local Government by the Minister for Local Government. This Act consolidates the law relating to local government in Western Australia, and by its provisions the Municipal Corporations Act, the Road Districts Act and a number of other, less important, Acts were repealed. The legislation came into operation on 1 July 1961 and from that date new designations were applied to many local government districts, bodies and offices. Former Municipalities, other than cities, became known as, ' Towns ' and Road Districts were renamed ' Shires '. Municipalities which already had city status remained ' Cities '. The executive body in each local government district became a ' Council ', City Councils and Town Councils being presided over by a Mayor, and Shire Councils by a President. The chief non-elective executive office of a City or a Town is that of ' Town Clerk ' and of a Shire, that of ' Shire Clerk '.

At 31 December 1969 there were 6 Cities, 12 Towns and 126 Shires in Western Australia.

Local Government Districts

The only unincorporated area in Western Australia is King's Park, a public reserve of almost one thousand acres in Perth, all other land being incorporated within the district of a City, Town or Shire.

On presentation of a petition signed by a prescribed minimum number of ratepayers, the number varying with the subject matter, the Governor may by Order constitute any part of the State as a Town; constitute any unincorporated area as a Shire; constitute as a new Shire any part of an existing Shire; divide a Shire into two or more Shires; sever portion of a district and annex the portion to an adjoining district, or constitute the portion as a new Town or Shire; annex to a district any adjacent unincorporated areas; divide a district into wards; or abolish a district and dissolve the local governing authority.

The Act establishes a Local Government Boundaries Commission of three members, one being an officer of the Department of Local Government, who is Chairman of the Commission. The other members must be persons having experience in local government and nominated by associations of local government authorities. The Minister may refer to the Commission any question concerning the constitution or alteration of the constitution of local government districts. Every case where authorities are unable to agree on a matter of amalgamation or severance of territory must be referred to the Commission.

On the petition of the local authority concerned, the Governor may by Order declare to be a City any district which satisfies certain specified requirements. These requirements are that, during the three years immediately preceding the declaration, it shall have maintained a population of not less than 30,000 persons if situated in the metropolitan area as declared for the purposes of the Act, or not less than 20,000 persons if situated outside that area; and have maintained a gross revenue of $200,000 for each of the three years. In addition the district must be clearly distinguishable as a centre of population having a distinct civic centre with adequate halls and cultural facilities, and must have sufficient residential, commercial and industrial centres to justify its declaration as a separate city. The six Cities in Western Australia are all situated in the Perth Statistical Division and five of them had been granted city status before the requirements imposed by the present legislation became operative. These five Cities are Perth (proclaimed in 1856), Fremantle (1929), Subiaco (1952), Nedlands (1959), and South Perth (1959). The Town of Melville was declared a city on 3 May 1968, having satisfied the requirements for city status provided by the Local Government Act.

The boundaries of local government districts as they existed at 31 December 1967 are delineated on the map of the State at the back of the Year Book and the names and designations as at that date are listed on the pages immediately preceding the Index.

Constitution and Electoral Provisions

The provisions of the Local Government Act relating to the composition of a City Council or a Town Council require that, in addition to the Mayor, there shall be,where the population is less than 1,000, six councillors; where the population is between 1,000 and 5,000, nine councillors; and if the population exceeds 5,000, twelve councillors if the district is not divided into wards but, where the district is divided into wards, three councillors for each ward. It is provided that a Shire Council shall consist of not less than five nor more than thirteen members, including the President.

Two methods of election to the office of Mayor or of President are prescribed. In the case of a City or Town, election is usually by a poll of the electors enrolled for the district. The President of a Shire is usually elected by the councillors from among their own number. It is provided, however, that a City or Town may adopt the system of election of the Mayor by the councillors, and that a Shire may conduct a poll of its electors for election to the office of President. The question of the adoption of the alternative system must, in all cases, be determined by submission to a poll of the electors, after delivery to the Mayor or the President of a resolution of a majority of the councillors or a petition signed by one-tenth of the electors, or by fifty electors, whichever is the greater. If not less than 15 per cent of eligible electors vote at the poll and a majority of the valid votes cast are in favour of the proposed alteration, the Governor may order its adoption.

The Act constitutes the office of Deputy Mayor, in the case of a City or a Town, and of Deputy President in the case of a Shire, and requires that the Council shall elect one of the councillors to the office.

Provision is made for local government elections to be held on the fourth Saturday in May of each year but in specified circumstances the Governor may, by proclamation, appoint a Saturday in May, earlier than the fourth Saturday, to be the election date. Membership of a Council is elective in all cases, the qualified electors being adult natural-born or naturalised British subjects who own or occupy rateable land in the district. The preferential system of voting is used and representation is generally on the basis of wards into which the district may be divided. Plural voting applies, an elector being entitled, in accordance with the rateable value of the property owned or occupied by him, to a number of votes which may not, however, exceed four in elections for Mayor or President, or two in elections for councillor. The Act contains provisions enabling nominees of corporations owning land in a district to vote at local government elections and to be elected to membership of the Council. Subject to disqualification on certain specified grounds, all adult persons who are natural-born or naturalised British subjects owning or occupying rateable land within the district are eligible for election to the Council of the district whether as Mayor, President or councillor.

The term of office of a Mayor or a President is two years if elected by the electors of the district, or one year if elected by the Council. Councillors are elected for a term of three years, some of their number, varying with the total membership of the Council, retiring each year. On the expiration of their term of office, all members, including the Mayor and the President, are eligible for re-election if not subject to any of the disqualifications contained in the Act.

It is provided that, if in a particular district there should at any time be no Council or not sufficient councillors to form a quorum, a Commissioner may be appointed to exercise all the powers of the local authority.

Functions of Local Authorities

The functions and powers of local authorities are extremely diverse in character. They are prescribed in detail in the Local Government Act and some of the more important of them are referred to in later Chapters of the Year Book. For example, reference to local government activity in the fields of road construction and maintenance will be found in Chapter VI Part 1 and Chapter IX Part 3, the provision of parks, gardens and recreation grounds in Chapter VII Part 1, libraries in Chapter V Part 2, public transport facilities in Chapter IX Part 3, water supplies in Chapter VII Part 2, town planning and building control in Chapter V Part 4, and the licensing of vehicles and road traffic control in Chapter

IX Part 3. Among the many other powers of local authorities are those relating to hospitals and nursing services, kindergartens, hostels for school children, community centres, dental clinics, infant and maternal health centres, day nurseries, jetties, swimming baths, swimming pools, sanitation and disposal of refuse, fire prevention, eradication of noxious weeds and vermin, electricity generation, aerodromes, abattoirs, quarries, pounds and cemeteries. Under the provisions of the Health Act local authorities are responsible for certain aspects of health administration.

The operations of any local government authority may be subject to investigation by a person appointed by the Governor or the Minister and having, for the purposes of the inquiry, the powers of a Royal Commission.

Financial Provisions

Financial powers of local authorities, although derived mainly from the Local Government Act, are also provided by other statutes, including the Health Act, the Water Boards Act, the Vermin Act, the Fire Brigades Act, the Cemeteries Act, the Library Board of Western Australia Act, the Argentine Ant Act and the Noxious Weeds Act. Revenue from vehicle licence fees payable under the provisions of the Traffic Act is another important item in local government finance.

Before the commencement of the Local Government Act on 1 July 1961, a number of rates, in addition to those authorised by local government legislation, were imposed as separate levies. These included health, sanitary and sewerage rates, water rates and vermin rates, as well as rates relating to fire brigades, cemeteries, libraries and the control of Argentine Ants and noxious weeds. Under the provisions of the Local Government Act, the local authorities may include these separate levies in the general rate provided for in the Act.

The general rate for any year is determined, subject to certain statutory limits, by dividing the anticipated total financial requirement for that year by the total value of rateable property in the district. In assessing this value, every local authority must adopt valuations made by the Taxation Department, by the water supply authority for the district, or by a qualified valuer (or valuers) appointed by the Council. The Act provides for the constitution of Valuation Appeal Courts, to which appeals may be made on matters concerning valuations of property and liability for rates as assessed by the Council.

Valuations may be on the basis of either 'unimproved value' or 'annual value'. The unimproved value generally represents the price which the rated land might be expected to realise if sold on the open market and, as the term implies, excludes any improvements. The annual value is an estimate of the annual rental value of the property including improvements, but with a prescribed deduction to cover rates, repairs, insurance and other related expenditure. Generally, City Councils and Town Councils are required to assess the general rate on the basis of annual value, and Shire Councils on unimproved value. It is provided, however, that any Council may, under certain specified conditions, adopt the alternative basis. Although in general a Council is required to levy a rate which is uniform throughout its district, it may differentiate in rating by charging a higher rate in a specified area where expenditure, including loan interest and repayments, is incurred in providing special services for the benefit of that area.

Local authorities are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. Borrowing by means of a special bank overdraft is permissible, with the consent of the Minister, for the installation of sewerage connections or septic tanks and, with the approval of the Governor, for other works or undertakings. Money may also be borrowed by the sale of debentures, repayment being either by the system of reducible principal or by means of a sinking fund. Payments to debenture holders are made at prescribed intervals. Under the system of reducible principal, the local authority undertakes to pay both principal and interest by fixed instalments. Where redemption is by means of a sinking fund, the local authority is required to establish and maintain the necessary fund at the State Treasury. Interest on the loan is normally paid half-yearly and the full amount of the loan is repaid at maturity.

The extent of loan raisings for works and undertakings is controlled by a provision which, except with the specific approval of the Governor, imposes a limit on the borrowings of an authority. This limit is determined by deducting the net total debt on existing loans from a sum equal to ten times the amount obtained by subtracting from the average of the ordinary revenue of the authority during the preceding two years the average, for the same period, of its annual expenditure on the servicing of loans. The legislation allows that balances standing to the credit of sinking funds for loan repayment, as well as amounts actually repaid, may be deemed to be repayments for the purposes of calculating net total debt. In the case of borrowings to liquidate existing loans, it is provided that the money raised shall not exceed the outstanding balance of the loan.

Before a loan may be raised by the issue of debentures, approval of the borrowing must be obtained from the State Treasury and the local authority must then publish in a newspaper and in the *Government Gazette* a notification of its intention to borrow money, including a statement of the amount of the proposed loan, its purpose and other relevant matters. Except in the case of a loan to liquidate an existing loan debt, the ratepayers of the district may demand that the proposition be submitted to a poll. If less than 15 per cent of the ratepayers vote at the poll, the raising of the loan is approved. Where not less than 15 per cent of ratepayers vote and the majority are against the loan, or the number of votes against the loan is equal to the number of those in favour, the raising of the loan is forbidden.

Certain of the works and undertakings for which loan moneys may be used are specified in the Local Government Act. They include the construction of streets, roads and bridges, sewers, drains and water works; the erection or purchase of electric lighting plant, gas works and stone quarries; the provision of hostels for school children, libraries and other recreational facilities; the construction of civic and other buildings; and the purchase of land, materials and equipment. Where a particular work or undertaking is not specified in the Act the Governor may approve of it as a project for which money may be borrowed.

The financial transactions of local government authorities are subject to annual audit either by an auditor (or auditors) appointed by the Council or by a government inspector appointed by the Minister. To qualify for the office of auditor, a person must be a member of a specified institute or society of accountants and be registered as an auditor under the Companies Act. Appointment is for a term not exceeding two years, at the end of which time the holder of the office is eligible for reappointment.

The financial year for all Councils ends on 30 June.

Details of the revenue and expenditure of local authorities during the five-year period ending with the financial year 1967–68 are given in the section *Local Government Finance* in Chapter VI, Part 1.

CHAPTER IV—POPULATION AND VITAL STATISTICS

Part 1—Population

NOTE. Population censuses prior to the Commonwealth Census of 1911 were undertaken by the Governments of the several Australian Colonies. In the Western Australian Census it was the practice to exclude full-blood Aborigines from the tabulations. At the 1911 Census and later enumerations full-blood Aborigines were excluded from the tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution. All tables and text on pages 124-37 therefore exclude particulars of full-blood Aborigines. See also references to Aborigines *on page 125 and* Aboriginal Population *on page 139.*

All Census figures shown in this Part are final. Population estimates for dates and periods up to 30 June 1966 are final; later estimates are subject to revision after the 1971 Census.

The State of Western Australia, although comprising almost one-third of the total area of Australia, contains less than 8 per cent of the population.

At the end of 1829, the year of establishment of the Colony, there were 1,000 persons in Western Australia. Progress in the early years was slow, and in 1849 the population was still less than 5,000. Transportation of convicts, begun in the following year, resulted in some acceleration, but it was not until the discovery of gold in the Kimberley in 1885 and the rich finds at Coolgardie in 1892 and at Kalgoorlie in 1893 that any marked increase took place. This development was so rapid that, in the last decade of the century, the population was almost quadrupled, from 48,500 at the end of 1890 to 180,000 in 1900, representing an average annual rate of increase of 14·01 per cent. The rate of growth in those years has never been approached in the present century, as will be seen from the table on page 139, but the average annual rate of increase of Western Australia's population from the beginning of the century to the end of 1968, 2·45 per cent, has been higher than that of any other State and of the Commonwealth as a whole, 1·74 per cent.

THE CENSUS

The first systematic census of the Colony of Western Australia was taken in 1848, since when there have been thirteen enumerations, at the dates shown in the table on page 125. The Census of 1881 was the first taken simultaneously in all the Australian Colonies and formed part of the first simultaneous census of the British Empire.

The first census of the Commonwealth of Australia conducted under the authority of the *Census and Statistics Act* 1905 was taken in 1911. The Act provided that a census should be taken in that year ' and in every tenth year thereafter '. In 1930 this provision was amended by the addition of the words ' or at such other time as is prescribed '. The depressed economic conditions of 1931 caused the postponement of the third Australian census to 1933, and because of war conditions the fourth Australian census was not taken until 1947. Consideration was then given to holding future censuses in the series of years originally provided for by the Act. However, it was thought that the interval from 1947 to 1951 was too short, and it was therefore decided to take the fifth census in 1954, at the mid-point of the period from 1947 to 1961. The sixth census was held in 1961. Owing to the administrative demand for more frequent counts of the population the seventh census was taken in 1966. The next Australian census is planned to be held in June 1971.

Scope of the Census

The Australian Census is conducted on a *de facto* basis, *i.e.* it records the population actually in Australia, persons being enumerated at the place where they spent the night of the census, and the population so recorded being credited to that place whether or not it is the usual place of residence.

The Census covers the population of the Commonwealth and the dwellings in which it lives. The only persons excluded from the census tabulations are full-blood Australian Aborigines (see the following section *Aborigines*) and diplomatic representatives of overseas countries and their families and staffs having diplomatic immunity in accordance with international practice.

The term ' dwelling ', as defined in the Census and Statistics Act, means ' a building, erection, or tenement, whether permanent or temporary, which is wholly or partly used for the purpose of human habitation and includes any ship or other vessel in any port of the Commonwealth or in any inland waters thereof, or any ship or vessel on a passage between any two Commonwealth ports '.

Tables dealing with dwellings recorded at the census will be found in Chapter V, Part 4.

Aborigines. Before an amendment to the Australian Constitution in 1967, it was provided by section 127 that ' in reckoning the numbers of the people of the Commonwealth, or of a State or other part of the Commonwealth, aboriginal natives shall not be counted '. This provision was deleted following a referendum held on 27 May 1967 which resulted in a large majority of votes in favour of its repeal. The enabling Act, the *Constitution Alteration (Aboriginals)* 1967, came into operation on 10 August 1967.

With regard to the original provision, Commonwealth legal authorities were of the opinion that persons of the half-blood were not ' aboriginal natives ' within the meaning of the Constitution, and *a fortiori* that persons of less than half Aboriginal blood were not Aboriginal natives. Accordingly, only persons having Aboriginal blood to a degree greater than one-half have been excluded from the census tabulations. Dwellings occupied solely by full-blood Aborigines so defined have similarly been excluded.

Tables relating to the Aboriginal population appear on pages 140-1.

Recorded Population

The population recorded in Western Australia at each census from 1848, its relation to the Australian population, and the masculinity are shown in the following table.

POPULATION AT EACH CENSUS DATE—1848-1966
WESTERN AUSTRALIA AND AUSTRALIA

Date of Census	Western Australia			Australia	Western Australia	
	Males	Females	Persons	Persons (*a*)	Proportion of Australia (per cent)	Masculinity (*b*)
1848—10 October	2,818	1,804	4,622	326,445	1·42	156·21
1854—30 September	7,779	3,964	11,743	671,436	1·75	196·24
1859—31 December	9,522	5,315	14,837	1,097,305	1·35	179·15
1870—31 March	15,375	9,410	24,785	1,606,057	1·54	163·39
1881—3 April	17,062	12,646	29,708	2,250,194	1·32	134·92
1891—5 April	29,807	19,975	49,782	3,177,823	1·57	149·22
1901—31 March	112,875	71,249	184,124	3,773,801	4·88	158·42
1911—3 April	161,565	120,549	282,114	4,455,005	6·33	134·02
1921—4 April	177,278	155,454	332,732	5,435,734	6·12	114·04
1933—30 June	233,937	204,915	438,852	6,629,839	6·62	114·16
1947—30 June	258,076	244,404	502,480	7,579,358	6·63	105·59
1954—30 June	330,358	309,413	639,771	8,986,530	7·12	106·77
1961—30 June	375,452	361,177	736,629	10,508,186	7·01	103·95
1966—30 June	426,691	409,982	836,673	11,550,462	7·24	104·08

(*a*) Figures for dates prior to 3 April 1881 are estimates. (*b*) Number of males to each 100 females.

Characteristics of the Population

Masculinity. The sharp rise in masculinity between the Census of 1848 and the three succeeding enumerations, as shown in the preceding table, was doubtless a result of the transportation of convicts which began in 1850 and continued until 1868. During this period a total of 9,668 convicts, all of whom were males, were brought to the Colony. The high levels of masculinity disclosed by the Censuses of 1891 and 1901 may be attributed to the influx of a predominantly male population following the gold discoveries of 1885 and later years.

The masculinity of Western Australia's population has continued to be high. At 30 June 1966, it stood at 104·08 and was higher than in any other State and significantly higher than the Commonwealth figure of 101·43.

Age. The following table shows the numbers and proportions of the population of Western Australia in selected age groups at each census from 1933. The age groups have been chosen as representing, in a general sense, such sectors as the pre-school population, children of school age, minors, women of child-bearing age, the economically active population, and those beyond normal working age.

POPULATION IN SELECTED AGE GROUPS—CENSUSES, 1933 TO 1966

Age last birthday (years)	Number in each age group (*a*)					Per cent of total				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
MALES										
Under 6	24,743	31,749	45,350	50,559	52,840	10·58	12·30	13·73	13·47	12·38
6–12	29,116	29,717	44,075	56,195	63,328	12·45	11·51	13·34	14·97	14·84
6–15	40,205	41,261	59,028	78,270	89,044	17·19	15·99	17·87	20·85	20·87
Under 18	73,091	81,352	113,847	141,371	157,932	31·24	31·52	34·46	37·65	37·01
Under 21	85,924	92,636	126,605	157,345	180,202	36·73	35·89	38·32	41·91	42·23
15–44	114,045	116,353	142,694	150,826	181,273	48·75	45·08	43·19	40·17	42·48
15–64	158,713	168,675	208,670	228,248	265,023	67·84	65·36	63·16	60·79	62·11
65 and over	13,978	20,386	22,262	24,593	28,331	5·98	7·90	6·74	6·55	6·64
All ages	233,937	258,076	330,358	375,452	426,691	100·00	100·00	100·00	100·00	100·00
FEMALES										
Under 6	23,833	30,518	43,871	47,888	50,180	11·63	12·49	14·18	13·26	12·24
6–12	28,049	28,911	41,897	54,243	60,036	13·69	11·83	13·54	15·02	14·64
6–15	38,853	40,023	56,210	75,024	84,790	18·96	16·38	18·17	20·77	20·68
Under 18	70,369	78,667	109,142	134,811	150,276	34·34	32·19	35·27	37·33	36·65
Under 21	82,608	90,538	121,393	150,128	171,055	40·31	37·04	39·23	41·57	41·72
15–44	98,083	110,993	131,254	143,056	168,419	47·87	45·41	42·42	39·61	41·08
15–64	134,980	157,458	189,062	213,573	247,244	65·87	64·43	61·10	59·13	60·31
65 and over	10,833	20,235	25,027	30,504	35,895	5·29	8·28	8·09	8·45	8·76
All ages	204,915	244,404	309,413	361,177	409,982	100·00	100·00	100·00	100·00	100·00
PERSONS										
Under 6	48,576	62,267	89,221	98,447	103,020	11·07	12·39	13·95	13·36	12·31
6–12	57,165	58,628	85,972	110,438	123,364	13·03	11·67	13·44	14·99	14·74
6–15	79,058	81,284	115,238	153,294	173,834	18·01	16·18	18·01	20·81	20·78
Under 18	143,460	160,019	222,989	276,182	308,208	32·69	31·85	34·85	37·49	36·84
Under 21	168,532	183,174	247,998	307,473	351,257	38·40	36·45	38·76	41·74	41·98
15–44	212,128	227,346	273,948	293,882	349,692	48·34	45·24	42·82	39·90	41·80
15–64	293,693	326,133	397,732	441,821	512,267	66·92	64·90	62·17	59·98	61·23
65 and over	24,811	40,621	47,289	55,097	64,226	5·65	8·08	7·39	7·48	7·68
All ages	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00

(*a*) Recorded ages adjusted by the distribution of ages 'not stated'.

AGE DISTRIBUTION OF THE POPULATION—CENSUSES, 1933 TO 1966

Age last birthday (years)	Population in each age group (*a*)					Percentage distribution				
	Census, 30 June—					Census, 30 June—				
	1933	1947	1954	1961	1966	1933	1947	1954	1961	1966
0– 4	40,297	52,452	74,978	81,916	84,810	9·18	10·44	11·72	11·12	10·14
5– 9	40,793	44,592	67,079	80,754	89,219	9·30	8·87	10·48	10·96	10·66
10–14	39,258	38,682	52,693	77,041	86,151	8·95	7·70	8·24	10·46	10·30
15–19	40,152	39,939	45,251	57,738	79,294	9·15	7·95	7·07	7·84	9·48
20–24	40,169	38,434	43,602	47,877	59,508	9·15	7·65	6·82	6·50	7·11
25–29	40,010	36,126	49,479	44,321	54,047	9·12	7·19	7·73	6·02	6·46
30–34	35,948	38,585	48,520	49,647	49,418	8·19	7·68	7·58	6·74	5·91
35–39	29,014	38,178	42,690	50,634	54,190	6·61	7·60	6·67	6·87	6·48
40–44	26,835	36,084	44,406	43,665	53,235	6·11	7·18	6·94	5·93	6·36
45–49	24,014	32,471	40,636	45,275	45,049	5·47	6·46	6·35	6·15	5·38
50–54	21,960	25,064	35,647	40,376	44,850	5·00	4·99	5·57	5·48	5·36
55–59	18,940	22,606	25,234	34,833	39,482	4·32	4·50	3·94	4·73	4·72
60–64	16,651	18,646	22,267	27,455	33,194	3·79	3·71	3·48	3·73	3·97
65–69	12,010	15,809	17,502	20,240	24,675	2·74	3·15	2·74	2·75	2·95
70–74	7,281	11,934	13,340	15,742	17,222	1·66	2·38	2·09	2·14	2·06
75 and over	5,520	12,878	16,447	19,115	22,329	1·26	2·56	2·57	2·59	2·67
Total	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00
Under 21	168,532	183,174	247,998	307,473	351,257	38·40	36·45	38·76	41·74	41·98
21–64	245,509	278,685	344,484	374,059	421,190	55·94	55·46	53·84	50·78	50·34
65 and over	24,811	40,621	47,289	55,097	64,226	5·65	8·08	7·39	7·48	7·68
Total	438,852	502,480	639,771	736,629	836,673	100·00	100·00	100·00	100·00	100·00

(*a*) Recorded ages adjusted by the distribution of ages 'not stated'.

AGE DISTRIBUTION OF THE POPULATION (*a*)—CENSUSES, 1961 AND 1966

Age last birthday (years)	Census, 30 June 1961		Census, 30 June 1966					
					Persons			
	Total persons	Per cent of total	Males	Females	Total	Per cent of total	Increase or decrease (*b*) since 1961	
							Numerical	Per cent
0– 4	81,916	11·12	43,524	41,286	84,810	10·14	2,894	3·53
5– 9	80,754	10·96	45,791	43,428	89,219	10·66	8,465	10·48
10–14	77,041	10·46	44,022	42,129	86,151	10·30	9,110	11·82
15–19	57,738	7·84	40,714	38,580	79,294	9·48	21,556	37·33
20–24	47,877	6·50	31,032	28,476	59,508	7·11	11,631	24·29
25–29	44,321	6·02	28,135	25,912	54,047	6·46	9,726	21·94
30–34	49,647	6·74	25,488	23,930	49,418	5·91	—229	—0·46
35–39	50,634	6·87	28,204	25,986	54,190	6·48	3,556	7·02
40–44	43,665	5·93	27,700	25,535	53,235	6·36	9,570	21·92
45–49	45,275	6·15	22,907	22,142	45,049	5·38	—226	—0·50
50–54	40,376	5·48	22,747	22,103	44,850	5·36	4,474	11·08
55–59	34,833	4·73	20,634	18,848	39,482	4·72	4,649	13·35
60–64	27,455	3·73	17,462	15,732	33,194	3·97	5,739	20·90
65–69	20,240	2·75	12,023	12,652	24,675	2·95	4,435	21·91
70–74	15,742	2·14	7,513	9,709	17,222	2·06	1,480	9·40
75–79	10,065	1·37	5,020	6,895	11,915	1·42	1,850	18·38
80–84	5,811	0·79	2,481	3,986	6,467	0·77	656	11·29
85–89	2,474	0·34	991	1,928	2,919	0·35	445	17·99
90–94	651	0·09	252	604	856	0·10	205	31·49
95–99	107	0·01	49	109	158	0·02	51	47·66
100 and over	7	0·00	2	12	14	0·00	7	100·00
Total	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(*a*) Recorded ages adjusted by the distribution of ages 'not stated'. (*b*) Minus sign (—) denotes decrease.

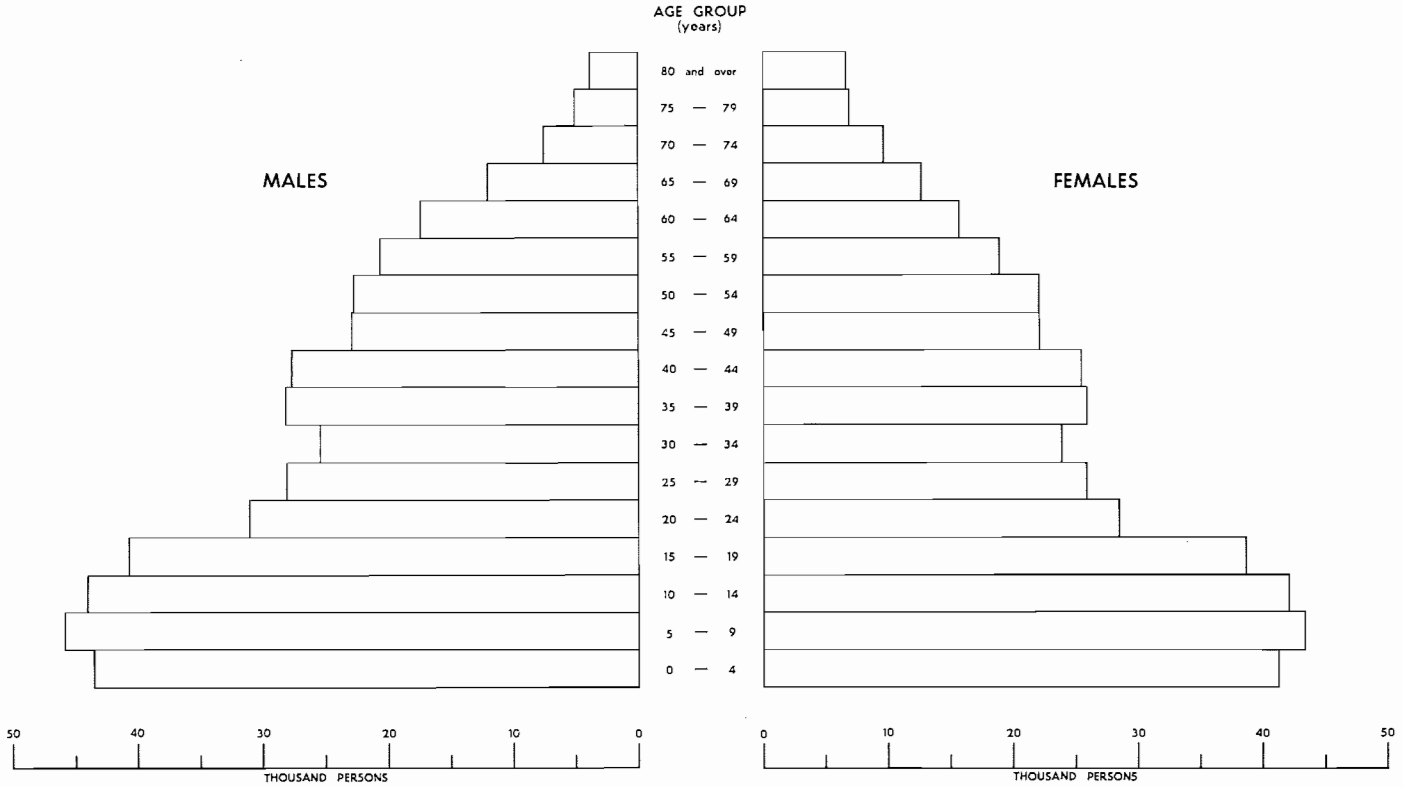
Birthplace; Nationality. The category ' British ' nationality, as used in the table below, includes all persons who, by virtue of section 7 of the *Nationality and Citizenship Act* 1948-1967, are deemed to be British subjects. It also includes persons who, under the provisions of the Act, are Australian citizens or citizens of any other country declared by regulation 5A of the Citizenship Regulations to be ' a country within the Commonwealth of Nations '. In addition, for the purpose of this table, Irish nationality is included with ' British '.

BIRTHPLACE AND NATIONALITY OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966					
					Persons			
	Total persons	Per cent of total	Males	Females	Total	Per cent of total	Increase or decrease (*a*) since 1961	
							Numerical	Per cent
BIRTHPLACE								
Australia—								
Western Australia	501,770	68·12	276,471	277,156	553,627	66·17	51,857	10·33
Elsewhere in Australia	70,412	9·56	41,727	42,528	84,255	10·07	13,843	19·66
Total	572,182	77·68	318,198	319,684	637,882	76·24	65,700	11·48
New Zealand	1,913	0·26	1,431	1,237	2,668	0·32	755	39·47
Europe—								
United Kingdom and Republic of Ireland	83,365	11·32	54,932	49,188	104,120	12·44	20,755	24·90
Austria	1,068	0·14	621	489	1,110	0·13	42	3·93
Germany	5,583	0·76	2,939	2,996	5,935	0·71	352	6·30
Greece	4,088	0·55	3,113	2,330	5,443	0·65	1,355	33·15
Italy	25,249	3·43	16,005	12,136	28,141	3·36	2,892	11·45
Latvia	1,247	0·17	633	501	1,134	0·14	—113	—9·06
Netherlands	11,163	1·52	5,755	4,614	10,369	1·24	—794	—7·11
Poland	4,711	0·64	2,775	1,952	4,727	0·56	16	0·34
Union of Soviet Socialist Republics (*b*)	1,672	0·23	836	792	1,628	0·19	—44	—2·63
Yugoslavia	5,876	0·80	4,641	2,860	7,501	0·90	1,625	27·65
Other	5,761	0·78	4,402	2,618	7,020	0·84	1,259	21·85
Total	149,783	20·33	96,652	80,476	177,128	21·17	27,345	18·26
Other birthplaces	12,751	1·73	10,410	8,585	18,995	2·27	6,244	48·97
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58
NATIONALITY								
British (*c*)—								
Born in Australia	572,182	77·68	318,198	319,684	637,882	76·24	65,700	11·48
Born outside Australia	130,708	17·74	90,412	77,089	167,501	20·02	36,793	28·15
Total, British (*c*)	702,890	95·42	408,610	396,773	805,383	96·26	102,493	14·58
Foreign—								
Austrian	431	0·06	224	103	327	0·04	— 104	— 24·13
Dutch	7,367	1·00	2,148	1,837	3,985	0·48	— 3,382	— 45·91
German	1,897	0·26	956	570	1,526	0·18	— 371	— 19·56
Greek	1,882	0·26	1,499	1,066	2,565	0·31	683	36·29
Italian	13,905	1·89	6,723	6,099	12,822	1·53	— 1,083	— 7·79
Polish	1,783	0·24	560	400	960	0·11	— 823	— 46·16
Spanish	49	0·01	336	150	486	0·06	437	891·84
U.S. American	464	0·06	1,214	730	1,944	0·23	1,480	318·97
Yugoslav	2,177	0·30	1,957	1,080	3,037	0·36	860	39·50
Stateless	914	0·12	388	239	627	0·07	— 287	— 31·40
Other	2,870	0·39	2,076	935	3,011	0·36	141	4·91
Total, Foreign	33,739	4·58	18,081	13,209	31,290	3·74	— 2,449	— 7·26
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(*a*) Minus sign (—) denotes decrease. (*b*) Includes Ukraine. (*c*) See letterpress immediately preceding table.

Population, by Age Group: Census, 30 June 1966



Religion; Marital Status. The Census and Statistics Act provides that there shall be no penalty for failure to answer the question on religion, and a statement to this effect is contained in the census schedule. This doubtless accounts for the high proportion of non-reply, amounting to 10·43 per cent of the population in 1961 and 10·85 per cent in 1966.

RELIGION AND MARITAL STATUS OF THE POPULATION—CENSUSES, 1961 AND 1966

Classification	Census, 30 June 1961		Census, 30 June 1966					
					Persons			
	Total persons	Per cent of total	Males	Females	Total	Per cent of total	Increase or decrease (*a*) since 1961	
							Numerical	Per cent
RELIGION								
Christian—								
Baptist	8,961	1·22	5,118	5,602	10,720	1·28	1,759	19·63
Brethren	857	0·12	393	406	799	0·10	— 58	— 6·77
Catholic (*b*)	74,121	10·06	48,389	50,729	99,118	11·85	24,997	33·72
Catholic, Roman (*b*)	106,052	14·40	60,705	53,836	114,541	13·69	8,489	8·00
Church of England	289,863	39·35	159,309	156,844	316,153	37·79	26,290	9·07
Churches of Christ	10,261	1·39	5,369	6,127	11,496	1·37	1,235	12·04
Congregational	8,026	1·09	4,016	4,359	8,375	1·00	349	4·35
Lutheran	4,460	0·61	2,640	2,513	5,153	0·62	693	15·54
Methodist	76,465	10·38	39,423	41,417	80,840	9·66	4,375	5·72
Orthodox	9,057	1·23	6,560	5,275	11,835	1·41	2,778	30·67
Presbyterian	40,583	5·51	22,080	21,975	44,055	5·27	3,472	8·56
Salvation Army	4,545	0·62	2,388	2,534	4,922	0·59	377	8·29
Seventh-day Adventist	3,790	0·51	1,927	2,430	4,357	0·52	567	14·96
Protestant (undefined)	5,234	0·71	3,470	3,209	6,679	0·80	1,445	27·61
Other (including Christian undefined)	8,756	1·19	5,818	6,346	12,164	1·45	3,408	38·92
Total, Christian	651,031	88·38	367,605	363,602	731,207	87·39	80,176	12·32
Non-Christian—								
Hebrew	2,782	0·38	1,510	1,486	2,996	0·36	214	7·69
Other	836	0·11	768	298	1,066	0·13	230	27·51
Total, Non-Christian	3,618	0·49	2,278	1,784	4,062	0·49	444	12·27
Indefinite	2,028	0·28	1,558	1,216	2,774	0·33	746	36·79
No religion	3,156	0·43	5,060	2,759	7,819	0·93	4,663	147·75
Total replies	659,833	89·57	376,501	369,361	745,862	89·15	86,029	13·04
No reply	76,796	10·43	50,190	40,621	90,811	10·85	14,015	18·25
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58
MARITAL STATUS								
Never married—								
Under 15 years of age	239,711	32·54	133,337	126,843	260,180	31·10	20,469	8·54
15 years of age and over	123,813	16·81	91,188	60,192	151,380	18·09	27,567	22·27
Total	363,524	49·35	224,525	187,035	411,560	49·19	48,036	13·21
Married	323,294	43·89	185,239	183,053	368,292	44·02	44,998	13·92
Married but permanently separated (*c*)	9,830	1·33	5,534	5,986	11,520	1·38	1,690	17·19
Divorced	6,524	0·89	3,741	3,774	7,515	0·90	991	15·19
Widowed	33,457	4·54	7,652	30,134	37,786	4·52	4,329	12·94
GRAND TOTAL	736,629	100·00	426,691	409,982	836,673	100·00	100,044	13·58

(*a*) Minus sign (—) denotes decrease. (*b*) As stated in individual census schedules. (*c*) Legally or otherwise.

Occupational Status; Industry; Occupation. Classifications of the population according to occupational status, industry, and occupation, as recorded at the Census of 30 June 1966, will be found in Chapter X.

Dwellings. Particulars of dwellings, as revealed by the census, are given in Chapter V.

INTERCENSAL INCREASES

The following table shows the population of Western Australia at each census from 1891 to 1966, and the intercensal gains or losses by natural increase and by migration. It also shows the average annual gains or losses in each intercensal period and in the whole period 1891-1966.

POPULATION—ANALYSIS OF INTERCENSAL INCREASES: 1891-1966

Period (*a*)	Population at beginning of period	Natural increase (*b*)		Net migration (*c*)		Total increase		Population at end of period
		Total	Annual average	Total	Annual average	Number	Annual average	
1891–1901 (10 years)	49,782	15,901	1,590	118,441	11,844	134,342	13,434	184,124
1901–1911 (10 years)	184,124	44,246	4,425	53,744	5,374	97,990	9,799	282,114
1911–1921 (10 years)	282,114	51,850	5,185	—1,232	—123	50,618	5,062	332,732
1921–1933 (12¼ years)	332,732	60,127	4,908	45,993	3,755	106,120	8,663	438,852
1933–1947 (14 years)	438,852	69,439	4,960	—5,811	—415	63,628	4,545	502,480
1947–1954 (7 years)	502,480	65,576	9,368	71,715	10,245	137,291	19,613	639,771
1954–1961 (7 years)	639,771	79,432	11,348	17,426	2,489	96,858	13,837	736,629
1961–1966 (5 years)	736,629	53,122	10,624	46,922	9,384	100,044	20,009	836,673
1891–1966 (75¼ years)	49,782	439,693	5,843	347,198	4,614	786,891	10,457	836,673

(*a*) For Census dates, see table on page 125. (*b*) Excess of births registered over deaths registered. (*c*) Interstate and overseas. Minus sign (—) indicates loss by migration.

The following table shows the increases in the populations of the several States and Territories, and of Australia as a whole, during each of the eight intercensal periods from 1891 to 1966.

POPULATION—INTERCENSAL INCREASES (*a*): STATES AND TERRITORIES, 1891-1966

State or Territory	1891–1901 (10 years)	1901–1911 (10 years)	1911–1921 (10 years)	1921–1933 (12¼ years)	1933–1947 (14 years)	1947–1954 (7 years)	1954–1961 (7 years)	1961–1966 (5 years)
NUMERICAL INCREASE								
New South Wales (*b*)	227,709	293,602	453,637	500,476	383,991	438,691	493,484	316,809
Victoria	60,982	114,481	215,729	288,981	234,440	397,640	477,772	289,413
Queensland	104,411	107,684	150,159	191,562	158,881	211,844	200,569	144,857
South Australia	42,813	50,212	86,602	85,789	65,124	151,021	172,246	122,535
Western Australia	134,342	97,990	50,618	106,120	63,628	137,291	96,858	100,044
Tasmania	25,808	18,736	22,569	13,819	29,479	51,674	41,588	21,095
Northern Territory	—87	—1,501	557	983	6,018	5,601	10,626	10,338
Australian Capital Territory	(*c*)	(*c*)	858	6,375	7,958	13,410	28,513	37,185
AUSTRALIA	595,978	681,204	980,729	1,194,105	949,519	1,407,172	1,521,656	1,042,276
PROPORTIONAL INCREASE (per cent)								
New South Wales (*b*)	20·20	21·67	27·55	23·83	14·76	14·70	14·41	8·09
Victoria	5·35	9·53	16·40	18·87	12·88	19·35	19·48	9·88
Queensland	26·52	21·62	24·79	25·34	16·77	19·15	15·21	9·54
South Australia	13·57	14·01	21·20	17·33	11·21	23·38	21·61	12·64
Western Australia	269·86	53·22	17·94	31·89	14·50	27·32	15·14	13·58
Tasmania	17·60	10·86	11·80	6·46	12·95	20·10	13·47	6·02
Northern Territory	—1·78	—31·20	16·83	25·42	124·08	51·54	64·52	38·15
Australian Capital Territory	(*c*)	(*c*)	50·06	247·86	88·95	79·33	94·06	63·21
AUSTRALIA	18·75	18·05	22·01	21·97	14·32	18·57	16·93	9·92
AVERAGE ANNUAL RATE OF INCREASE (per cent)								
New South Wales (*b*)	1·86	1·97	2·46	1·76	0·99	1·98	1·94	1·57
Victoria	0·52	0·91	1·53	1·42	0·87	2·56	2·58	1·90
Queensland	2·38	1·98	2·24	1·86	1·11	2·53	2·04	1·84
South Australia	1·28	1·32	1·94	1·31	0·76	3·05	2·83	2·41
Western Australia	13·97	4·36	1·66	2·29	0·97	3·51	2·03	2·58
Tasmania	1·63	1·04	1·12	0·51	0·87	2·65	1·82	1·18
Northern Territory	—0·18	—3·67	1·57	1·87	5·93	6·12	7·37	6·68
Australian Capital Territory	(*c*)	(*c*)	4·14	10·71	4·65	8·70	9·93	10·29
AUSTRALIA	1·73	1·67	2·01	1·63	0·96	2·46	2·26	1·91

(*a*) Minus sign (—) denotes decrease. (*b*) Includes Australian Capital Territory prior to 1911. (*c*) Part of New South Wales prior to 1911.

GEOGRAPHICAL DISTRIBUTION

Urban and Rural Populations

For the purpose of presenting statistics obtained at the Census of 30 June 1966, new methods were used in the delimitation of metropolitan areas and certain other urban centres. Briefly, these are as follows:

(i) Around each capital city and each town with a population of 75,000 or more *two* boundaries were drawn.

The *outer* boundary, which is fixed, circumscribes the area in close economic and social contact with the main city or town. These areas are designated Statistical Divisions (for State capital cities) or Statistical Districts (for Canberra and some other cities). The *inner* boundary indicates the area within which, at the time of the Census, there was a density of at least 500 persons per square mile. This density is determined for each Census collector's district (the smallest geographical area available). From Census to Census as urbanisation proceeds this *inner* boundary will move outwards to encompass peripheral development. Some specified areas of lower density (*e.g.* industrial areas) are classified as urban on other grounds.

(ii) The principal urban centre within each Capital City Statistical Division is designated the 'Metropolitan Area'.

(iii) Population clusters of 1,000 or more persons having a minimum density of 500 persons per square mile are designated Urban Centres.

In determining the outer boundary of each Capital City Statistical Division the aim was to delimit, for at least two or three decades, the region expected to be in close contact with the inner urban area, after making allowances for further urban development, including satellite towns, improvements in transport, and other factors.

The Perth Statistical Division and its component local government areas are shown on the map of Western Australia at the back of the Year Book. The area of the Division at 30 June 1966 was 2,072 square miles.

The Perth Metropolitan Area (delimited by the *inner* boundary as described above) embraced an area of 147·51 square miles at 30 June 1966. It comprised the Cities of Fremantle, Nedlands, Perth, South Perth, and Subiaco; the Towns of Claremont, Cottesloe, East Fremantle, Midland, and Mosman Park; the Shires of Bassendean and Peppermint Grove; part of the Town of Melville (declared a City with effect from 3 May 1968), and parts of the Shires of Bayswater, Belmont, Canning, Cockburn, Gosnells, Mundaring, Perth, Swan-Guildford, and Wanneroo.

A detailed statement on the concepts and criteria adopted in the delimitation of metropolitan areas and other urban centres is contained in *Field Count Statement No. 4—Population: Principal Urban Centres of Australia* published November 1966 by the Commonwealth Statistician, Canberra.

Comparable information for the 1961 Census has been prepared, using the new concepts. Because the 1961 Census collectors' districts were not always suitable for this purpose, some estimations have had to be made.

The following tables show, for 1961 and 1966, a division of the population of each State and Territory into *Urban* and *Rural* on the basis of the new concepts. *Metropolitan Urban* refers to Metropolitan Areas as defined above. *Other Urban* represents the aggregation of the populations of Urban Centres outside the Metropolitan Areas, as in the table on page 133. *Rural* comprises the remaining portion of each State or Territory. The term *Migratory* refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

URBAN AND RURAL POPULATIONS (*a*)—STATES AND TERRITORIES CENSUSES, 1961 AND 1966

(Persons)

State or Territory	Urban			Rural	Migratory	Total population
	Metro-politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales	2,197,022	1,118,057	3,315,079	591,343	10,591	3,917,013
Victoria	1,858,534	580,939	2,439,473	486,031	4,609	2,930,113
Queensland	587,634	540,870	1,128,504	388,336	1,988	1,518,828
South Australia	580,449	178,227	758,676	206,726	3,938	969,340
Western Australia	423,930	124,427	548,357	185,255	3,017	736,629
Tasmania	110,217	125,925	236,142	113,319	879	350,340
Northern Territory	....	19,056	19,056	7,775	264	27,095
Australian Capital Territory	55,746	....	55,746	3,082	....	58,828
AUSTRALIA	5,813,532	2,687,501	8,501,033	1,981,867	25,286	10,508,186
CENSUS, 30 JUNE 1966						
New South Wales	2,446,345	1,211,472	3,657,817	566,946	9,059	4,233,822
Victoria	2,110,168	643,598	2,753,766	462,772	2,988	3,219,526
Queensland	718,822	558,115	1,276,937	384,689	2,059	1,663,685
South Australia	727,916	173,796	901,712	188,590	1,573	1,091,875
Western Australia	499,969	140,267	640,236	193,399	3,038	836,673
Tasmania	119,469	141,512	260,981	109,779	675	371,435
Northern Territory	....	28,753	28,753	8,385	295	37,433
Australian Capital Territory	92,308	....	92,308	3,705	....	96,013
AUSTRALIA	6,714,997	2,897,513	9,612,510	1,918,265	19,687	11,550,462

(*a*) See letterpress preceding table for definitions of *Urban*, *Rural*, etc.

URBAN AND RURAL POPULATIONS (*a*)—STATES AND TERRITORIES PERCENTAGE DISTRIBUTION: CENSUSES, 1961 AND 1966

(Per cent)

State or Territory	Urban			Rural	Migratory	Total
	Metro-politan	Other	Total			
CENSUS, 30 JUNE 1961						
New South Wales	56·09	28·54	84·63	15·10	0·27	100·00
Victoria	63·43	19·83	83·26	16·59	0·16	100·00
Queensland	38·69	35·61	74·30	25·57	0·13	100·00
South Australia	59·88	18·39	78·27	21·33	0·41	100·00
Western Australia	57·55	16·89	74·44	25·15	0·41	100·00
Tasmania	31·46	35·94	67·40	32·35	0·25	100·00
Northern Territory	....	70·33	70·33	28·70	0·97	100·00
Australian Capital Territory	94·76	....	94·76	5·24	....	100·00
AUSTRALIA	55·32	25·58	80·90	18·86	0·24	100·00
CENSUS, 30 JUNE 1966						
New South Wales	57·78	28·61	86·40	13·39	0·21	100·00
Victoria	65·54	19·99	85·53	14·37	0·09	100·00
Queensland	43·21	33·55	76·75	23·12	0·12	100·00
South Australia	66·67	15·92	82·58	17·27	0·14	100·00
Western Australia	59·76	16·76	76·52	23·12	0·36	100·00
Tasmania	32·16	38·10	70·26	29·56	0·18	100·00
Northern Territory	....	76·81	76·81	22·40	0·79	100·00
Australian Capital Territory	96·14	....	96·14	3·86	....	100·00
AUSTRALIA	58·14	25·09	83·22	16·61	0·17	100·00

(*a*) See page 131 for definitions of *Urban*, *Rural*, etc.

The following table shows the population of urban centres in Western Australia at the Censuses of 1961 and 1966. For *Metropolitan* and *Other Urban* centres, which are delineated by moving boundaries (see letterpress on page 131), boundaries for 1961 have been redrawn according to the new criteria. The urban populations (partly estimated) within these boundaries are shown in this table for comparison with the 1966 population. The intercensal increase or decrease between 1961 and 1966 may reflect population change within the original 1961 boundary; urban growth beyond the original boundary; or the merging of *Other Urban* areas with the *Metropolitan Area.*

POPULATION—METROPOLITAN, OTHER URBAN, RURAL, AND MIGRATORY (*a*) CENSUSES, 1961 AND 1966

Area	Population				Intercensal increase or decrease		
	Census, 30 June—						
	1961	1966			Number	Per cent	Average annual rate (per cent)
	Persons	Males	Females	Persons			
Perth Metropolitan Area (*a*)	423,930	244,762	255,207	499,969	76,039	17·94	3·35
Other urban centres (*a*)—							
Kalgoorlie-Boulder	21,247	10,358	9,550	19,908	— 1,339	— 6·30	— 1·29
Bunbury	13,186	7,789	7,670	15,459	2,273	17·24	3·23
Geraldton	10,894	6,245	5,880	12,125	1,231	11·30	2·16
Albany	10,526	5,598	5,821	11,419	893	8·48	1·64
Collie	7,547	3,843	3,785	7,628	81	1·07	0·21
Northam	7,200	3,825	3,575	7,400	200	2·78	0·55
Narrogin	4,620	2,396	2,465	4,861	241	5·22	1·02
Busselton	3,495	2,091	2,187	4,278	783	22·40	4·13
Medina-Calista	3,269	2,085	2,047	4,132	863	26·40	4·80
Rockingham-Safety Bay	1,726	1,911	1,856	3,767	2,041	118·25	16·89
Merredin	3,029	1,927	1,672	3,599	570	18·82	3·51
Katanning	3,360	1,782	1,724	3,506	146	4·35	0·85
Armadale	2,565	1,694	1,769	3,463	898	35·01	6·19
Manjimup	2,914	1,578	1,608	3,186	272	9·33	1·80
Kalamunda-Gooseberry Hill	2,488	1,522	1,546	3,068	580	23·31	4·28
Carnarvon	1,809	1,572	1,384	2,956	1,147	63·41	10·32
Mandurah	2,121	1,332	1,398	2,730	609	28·71	5·18
Esperance	1,111	1,414	1,263	2,677	1,566	140·95	19·23
Harvey	2,046	1,048	1,018	2,066	20	0·98	0·19
Norseman	1,980	995	868	1,863	— 117	— 5·91	— 1·21
Port Hedland (*b*)	965	1,087	691	1,778	813	84·25	13·00
Wagin	1,608	902	848	1,750	142	8·83	1·71
Mount Barker	1,532	814	780	1,594	62	4·05	0·80
Broome	1,222	963	607	1,570	348	28·48	5·14
Bridgetown	1,565	796	773	1,569	4	0·26	0·05
Derby (*c*)	994	760	664	1,424	430	43·26	7·45
York	1,524	734	687	1,421	— 103	— 6·76	— 1·39
Kellerberrin	1,323	657	686	1,343	20	1·51	0·30
Kwinana Industrial (*d*)	1,104	676	596	1,272	168	15·22	2·87
Moora	1,145	625	560	1,185	40	3·49	0·69
Wyndham (*c*)	958	759	397	1,156	198	20·67	3·83
Dampier	(*e*)	1,007	73	1,080	n.a.	n.a.	n.a.
Wundowie	1,102	555	485	1,040	— 62	— 5·63	— 1·15
Waroona	1,005	510	503	1,013	8	0·80	0·16
Gnowangerup (*f*)	740	494	487	981	241	32·57	5·80
Donnybrook	1,011	(*g*)	(*g*)	(*g*)	n.a.	n.a.	n.a.
Pemberton	1,201	(*h*)	(*h*)	(*h*)	n.a.	n.a.	n.a.
Total, Other urban (*i*)	124,427	72,344	67,923	140,267	15,840	12·73	2·43
Total urban (*i*)	548,357	317,106	323,130	640,236	91,879	16·76	3·15
Rural	185,255	107,077	86,322	193,399	8,144	4·40	0·86
Migratory (*a*)	3,017	2,508	530	3,038	21	0·70	n.a.
WESTERN AUSTRALIA	736,629	426,691	409,982	836,673	100,044	13·58	2·58

n.a. denotes ' not applicable '.

(*a*) See letterpress on page 131. (*b*) Non-urban in 1961. (*c*) Classified as urban in 1961, as population inclusive of full-blood Aborigines exceeded 1,000. (*d*) Excludes Medina-Calista. (*e*) Non-urban in 1961; population not available. (*f*) Non-urban in 1961. Classified as urban in 1966, as population inclusive of full-blood Aborigines exceeded 1,000. (*g*) Non-urban in 1966; population 981. (*h*) Non-urban in 1966; population 931. (*i*) Figures for 1961 exclude populations shown for Port Hedland and Gnowangerup; see notes (*b*) and (*f*).

Population in Statistical Divisions

Western Australia is divided into a number of municipal districts for the purposes of local government administration. These districts, of which there were 144 at 30 June 1966, are used as the basis of presentation of data derived not only from the Census of Population and Housing but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form. The Statistical Divisions and their component local government areas are shown on the map of the State appearing at the back of the Year Book.

In 1929, when statistics were first presented according to Statistical Divisions, Western Australia was divided into seven such areas. There are currently ten Statistical Divisions, and these have been used as the basis of compilation of the particulars in the following tables. The figures shown refer to the areas contained within the several Divisions as they existed at the Census of 30 June 1966.

The Perth Statistical Division, in common with similar Divisions for each of the other State capital cities, was used for the first time in census tabulations at the Census of 30 June 1966 (see preceding section *Urban and Rural Populations*).

STATISTICAL DIVISIONS —POPULATION AT EACH CENSUS FROM 1911
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
POPULATION ('000)							
Perth Statistical Division	116·2	170·2	230·3	303·0	395·0	475·4	558·8
Other Divisions—							
South-West	27·0	34·4	50·4	52·0	68·6	71·6	72·8
Southern Agricultural	15·9	20·5	27·0	24·9	36·1	41·6	44·5
Central Agricultural	31·5	40·5	53·6	43·8	55·9	57·6	58·4
Northern Agricultural	13·4	17·7	26·6	24·7	32·1	35·8	38·3
Eastern Goldfields	55·0	33·7	33·2	37·7	34·6	34·1	33·9
Central	9·6	5·0	7·9	6·4	4·8	4·0	3·5
North-West	2·1	2·1	2·6	2·6	4·2	4·6	8·4
Pilbara	2·5	1·4	1·8	1·7	2·7	3·2	7·4
Kimberley (*a*)	2·0	2·2	2·1	2·8	3·5	5·7	7·6
Total (*a*)	158·9	157·3	205·3	196·5	242·5	258·2	274·8
Total, all Divisions (*a*)	275·1	327·5	435·7	499·5	637·5	733·6	833·6
Migratory (*a*)	7·0	5·2	3·2	3·0	2·3	3·0	3·0
WESTERN AUSTRALIA	282·1	332·7	438·9	502·5	639·8	736·6	836·7
PROPORTION OF STATE TOTAL (per cent)							
Perth Statistical Division	41·18	51·16	52·49	60·29	61·75	64·54	66·79
Other Divisions—							
South-West	9·57	10·33	11·49	10·34	10·72	9·72	8·70
Southern Agricultural	5·63	6·16	6·15	4·96	5·65	5·65	5·32
Central Agricultural	11·16	12·16	12·22	8·71	8·74	7·82	6·98
Northern Agricultural	4·75	5·32	6·06	4·91	5·01	4·86	4·57
Eastern Goldfields	19·51	10·13	7·57	7·51	5·40	4·63	4·06
Central	3·39	1·49	1·79	1·27	0·75	0·54	0·42
North-West	0·75	0·62	0·60	0·52	0·66	0·62	1·00
Pilbara	0·87	0·42	0·42	0·33	0·41	0·44	0·88
Kimberley (*a*)	0·70	0·65	0·48	0·55	0·55	0·77	0·91
Total (*a*)	56·33	47·28	46·78	39·11	37·90	35·05	32·85
Total, all Divisions (*a*)	97·51	98·44	99·27	99·41	99·65	99·59	99·64
Migratory (*a*)	2·49	1·56	0·73	0·59	0·35	0·41	0·36
WESTERN AUSTRALIA	100·00	100·00	100·00	100·00	100·00	100·00	100·00

(*a*) At censuses prior to 1954, the pearling fleet based on Broome was classified to *Migratory* (see letterpress on page 131). The estimated population involved was 2,500 in 1911; 1,500 in 1921; 800 in 1933; and 200 in 1947. From 1954, pearling crews have been included in the population of Broome.

STATISTICAL DIVISIONS—POPULATION AT CENSUSES, 1961 AND 1966

Statistical Division	Census, 30 June 1961 (*a*)				Census, 30 June 1966			
	Males	Females	Persons	Masculinity (*b*)	Males	Females	Persons	Masculinity (*b*)
Perth Statistical Division	233,584	241,814	475,398	96·60	274,872	283,949	558,821	96·80
Other Divisions—								
South-West	37,314	34,323	71,637	108·71	37,460	35,363	72,823	105·93
Southern Agricultural	21,999	19,624	41,623	112·10	23,345	21,183	44,528	110·21
Central Agricultural	30,962	26,628	57,590	116·28	31,402	26,994	58,396	116·33
Northern Agricultural	19,569	16,199	35,768	120·80	20,834	17,435	38,269	119·50
Eastern Goldfields	18,430	15,712	34,142	117·30	18,416	15,514	33,930	118·71
Central	2,376	1,604	3,980	148·13	2,040	1,446	3,486	141·08
North-West	2,754	1,809	4,563	152·24	5,383	2,972	8,355	181·12
Pilbara	2,119	1,124	3,243	188·52	5,547	1,836	7,383	302·12
Kimberley	3,816	1,852	5,668	206·05	4,884	2,760	7,644	176·96
Total	139,339	118,875	258,214	117·21	149,311	125,503	274,814	118·97
Total, all Divisions	372,923	360,689	733,612	103·39	424,183	409,452	833,635	103·60
Migratory (*c*)	2,529	488	3,017	518·24	2,508	530	3,038	473·21
WESTERN AUSTRALIA	375,452	361,177	736,629	103·95	426,691	409,982	836,673	104·08

(*a*) For the purpose of this table, the figures shown for 30 June 1961 have been adjusted to conform to the boundaries of Statistical Divisions as they existed at the 1966 Census. (*b*) Number of males to each 100 females. (*c*) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

STATISTICAL DIVISIONS—ANALYSIS OF POPULATION INCREASE 30 JUNE 1961 TO 30 JUNE 1966

Statistical Division	Intercensal increase of population (*a*)				
	By natural increase (*b*)	By migration	Total		
			Number	Per cent	Average annual rate (per cent)
Perth Statistical Division	28,079	55,344	83,423	17·55	3·29
Other Divisions—					
South-West	5,673	— 4,487	1,186	1·66	0·33
Southern Agricultural	3,930	— 1,025	2,905	6·98	1·36
Central Agricultural	6,074	— 5,268	806	1·40	0·28
Northern Agricultural	4,133	— 1,632	2,501	6·99	1·36
Eastern Goldfields	2,910	— 3,122	— 212	— 0·62	— 0·12
Central	453	— 947	— 494	— 12·41	— 2·62
North-West	584	3,208	3,792	83·10	12·86
Pilbara	495	3,645	4,140	127·66	17·88
Kimberley	791	1,185	1,976	34·86	6·16
Total	25,043	— 8,443	16,600	6·43	1·25
Total, all Divisions	53,122	46,901	100,023	13·63	2·59
Migratory (*c*)	n.a.	21	21	0·70	n.a.
WESTERN AUSTRALIA	53,122	46,922	100,044	13·58	2·58

n.a. denotes ' not applicable '.
(*a*) Minus sign (—) denotes decrease. (*b*) Excess of births registered over deaths registered. (*c*) See note (*c*) to previous table.

The growing urbanisation occurring in other States is also apparent in Western Australia. The population of the Perth Statistical Division at the Census of 30 June 1966 was 558,821, or 66·8 per cent of the State total, compared with 475,398 (64·5 per cent) five years earlier, an increase of 83,423 persons or 17·5 per cent. The State's natural increase between the Censuses was 53,122 of which the Perth Statistical Division contributed 28,079. In addition, this Division experienced a net gain by migration of 55,344.

The larger towns of the Agricultural and South-West Statistical Divisions also showed substantial population increases, the greatest being those of Bunbury (2,273 persons; or 17·2 per cent), Geraldton (1,231; 11·3 per cent) and Albany (893; 8·5 per cent).

The total population in the area outside the Perth Statistical Division rose by 16,600 or 6·4 per cent. The natural increase recorded in the area was 25,043, so that there was a loss of 8,443 persons by migration. Of the net increase of 16,600 persons, the Pilbara Division accounted for almost one quarter with a population gain of 4,140 and showed the greatest proportional increase, 127·7 per cent. Other Divisions showing an increase were North-West, 3,792 (83·1 per cent); Southern Agricultural, 2,905 (7·0 per cent); Northern Agricultural, 2,501 (7·0 per cent); Kimberley, 1,976 (34·9 per cent); South-West, 1,186 (1·7 per cent) and Central Agricultural, 806 (1·4 per cent). Divisions which experienced a decrease in population were Central which lost 494 persons (—12·4 per cent) and Eastern Goldfields with a decline of 212 (—0·6 per cent).

The Eastern Goldfields, Central and Pilbara Statistical Divisions together comprised an area of 638,508 square miles (or almost two-thirds of the State) and had a population of only 44,799 persons at the Census of 30 June 1966. A low rainfall renders much of it virtually uninhabitable and desert or near-desert conditions prevail over some 350,000 square miles which includes much of the eastern and northern parts of the area and extends into the southern portion of the Kimberley Statistical Division. Almost no part of this desert area has an annual rainfall greater than ten inches and a considerable proportion has much less. Of the total of 44,799 persons enumerated in the three Divisions at the Census, more than three-fifths were in the towns of Kalgoorlie-Boulder (19,908), Esperance (2,677), Norseman (1,863), Port Hedland (1,778) and Dampier (1,080).

Population of South-West Land Division

The South-West Land Division, as defined in the *Land Act, 1933-1969*, often has particular importance in matters of legislation and administration. Its boundaries are almost coincident with those of the area formed by the aggregation of the Perth Statistical Division and the South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Statistical Divisions. It embraces an area of 98,305 square miles, a little more than one-tenth of the whole State (975,920 square miles), and had a population of 772,800 persons at the 1966 Census, equivalent to 92·4 per cent of the State total, compared with 682,000 (92·6 per cent) in 1961.

Population North of 26° S. Latitude

For administrative and other purposes, the portion of the State lying north of the 26th parallel of latitude frequently has special significance. This area, which embraces part of the Central Statistical Division, almost all of the North-West Statistical Division, and the whole of the Pilbara and Kimberley Statistical Divisions, is 529,486 square miles in extent and is therefore somewhat greater in area than half the entire State. It had a population of 13,657 persons at the 1961 Census and 23,591 in 1966. Of this total, more than three-fifths were enumerated in the coastal towns of Carnarvon (2,956), Port Hedland (1,778), Broome (1,570), Derby (1,424), Wyndham (1,156), Dampier (1,080), Exmouth (880) and Denham (284); the mining centres of Wittenoom (876), Yampi (593), Tom Price (549) and Goldsworthy (381); and the Ord River agricultural settlement at Kununurra (930).

POPULATION DENSITY

The most densely populated part of the State is the Perth Metropolitan Area (see letterpress *Urban and Rural Populations* on page 131). At the Census of 30 June 1966 it had a population of 499,969 persons and an area of 147·51 square miles, representing a density of 3,389 persons per square mile. Among the Statistical Divisions, Perth with a population of 558,821 and 2,072 square miles in area showed the highest density, 270 persons per square mile. The Central Statistical Division was the most sparsely populated with an area of 218,011 square miles (more than one-fifth of the entire State) and a Census population of only 3,486 persons, equivalent to an average of one person to every sixty-three square miles.

STATISTICAL DIVISIONS—AREA, POPULATION AND DENSITY: CENSUS, 30 JUNE 1966

Statistical Division	Area		Population				
					Persons		
	Square miles	Per cent of total	Males	Females	Total	Per cent of total	Density (per square mile)
Perth Statistical Division	2,072	0·21	274,872	283,949	558,821	66·79	269·70
Other Divisions—							
South-West	11,030	1·13	37,460	35,363	72,823	8·70	6·60
Southern Agricultural	22,025	2·26	23,345	21,183	44,528	5·32	2·02
Central Agricultural	30,270	3·10	31,402	26,994	58,396	6·98	1·93
Northern Agricultural	33,921	3·48	20,834	17,435	38,269	4·57	1·13
Eastern Goldfields	249,035	25·52	18,416	15,514	33,930	4·06	0·14
Central	218,011	22·34	2,040	1,446	3,486	0·42	0·02
North-West	75,731	7·76	5,383	2,972	8,355	1·00	0·11
Pilbara	171,462	17·57	5,547	1,836	7,383	0·88	0·04
Kimberley	162,363	16·64	4,884	2,760	7,644	0·91	0·05
Total	973,848	99·79	149,311	125,503	274,814	32·85	0·28
Total, all Divisions	975,920	100·00	424,183	409,452	833,635	99·64	0·85
Migratory (*a*)	n.a.	n.a.	2,508	530	3,038	0·36	n.a.
WESTERN AUSTRALIA	975,920	100·00	426,691	409,982	836,673	100·00	0·86

n.a. denotes ' not applicable '.

(*a*) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

Western Australia had a population density at the 1966 Census of only 0·86 persons per square mile, compared with an average of 3·89 for Australia as a whole. Victoria was the most densely populated State, having an average of 36·63 persons per square mile.

AREA, POPULATION AND DENSITY—STATES AND TERRITORIES: CENSUS, 30 JUNE 1966

State or Territory	Area		Population				
					Persons		
	Square miles	Per cent of total	Males	Females	Total	Per cent of total	Density (per square mile)
New South Wales	309,433	10·43	2,124,462	2,109,360	4,233,822	36·66	13·68
Victoria	87,884	2·96	1,613,904	1,605,622	3,219,526	27·87	36·63
Queensland	667,000	22·47	843,897	819,788	1,663,685	14·40	2·49
South Australia	380,070	12·81	548,530	543,345	1,091,875	9·45	2·87
Western Australia	975,920	32·88	426,691	409,982	836,673	7·24	0·86
Tasmania	26,383	0·89	187,390	184,045	371,435	3·22	14·08
Northern Territory	520,280	17·53	21,508	15,925	37,433	0·32	0·07
Australian Capital Territory	939	0·03	49,977	46,036	96,013	0·83	102·25
AUSTRALIA	2,967,909	100·00	5,816,359	5,734,103	11,550,462	100·00	3·89

ESTIMATES OF POPULATION

For dates other than those of the periodic census of population, estimates are based on records of births and deaths and of movements of population interstate and overseas. Estimates of the population of Australia and of each of the States and Territories are prepared by the Commonwealth Statistician as at 31 March, 30 June, 30 September and 31 December in each year. Because the available records of interstate movement are incomplete, these intercensal estimates as they apply to States and Territories are approximate and are revised when the results of the next succeeding census become known.

Mean Population

Mean populations are calculated for twelve-month periods to provide a satisfactory average basis for calculations requiring allowance for the continuous change in population figures during such periods. Estimates of mean population for 1901 and later years have been derived from the formula:

$$\text{Mean population} = \frac{a + 4b + 2c + 4d + e}{12}$$

where a, b, c, d, and e, respectively, are the populations at the end of the quarter immediately preceding the year and at the end of each of the four succeeding quarters, *e.g.* in the case of a calendar year, 31 December of the preceding year, and 31 March, 30 June, 30 September and 31 December of the year under consideration. This formula gives a close approximation to the mean of a theoretical population progressing smoothly through the five values a, b, c, d, and e.

The next table of population estimates shows the mean populations for the calendar and financial years 1964 to 1968.

Population Estimates

As a result of the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution, to which reference is made on page 125, current population estimates no longer exclude full-blood Aborigines. Estimates for earlier dates and periods back to the Census of 30 June 1961 have also been prepared on the basis of *total* population (*i.e.* including Aborigines) and are presented from 1964 in the following tables. The final results of the 1966 Census, inclusive of all persons enumerated, have been taken into account in the preparation of these estimates. Figures for dates and periods subsequent to 30 June 1966 are subject to revision after the 1971 Census.

POPULATION ESTIMATES

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to *total* population, *i.e.* including Aborigines.

Year	Population at end of year (*a*)			Increase during year			Mean population		
	Males	Females	Persons	Natural increase (*b*) (*c*)	Estimated net migration (*c*) (*d*)	Total increase	Males	Females	Persons
YEAR ENDED 30 JUNE									
1964	412,103	396,340	808,443	10,787	9,028	20,099	407,114	391,710	798,824
1965	421,017	404,508	825,525	9,825	6,987	17,082	416,623	400,534	817,157
1966 (*e*)	432,569	415,531	848,100	9,878	12,491	22,575	427,000	410,290	837,290
1967	446,709	429,653	876,362	11,058	17,204	28,262	439,506	422,624	862,130
1968	463,304	446,105	909,409	11,525	21,522	33,047	454,773	437,764	892,537
YEAR ENDED 31 DECEMBER									
1964	417,023	401,098	818,121	10,256	8,705	19,226	412,027	396,273	808,300
1965	427,330	410,918	838,248	9,912	9,963	20,127	421,437	405,044	826,481
1966	439,680	423,005	862,685	10,235	14,046	24,437	432,865	415,972	848,837
1967	454,743	438,020	892,763	11,244	18,834	30,078	446,945	430,052	876,997
1968	473,779	456,979	930,758	12,073	25,922	37,995	463,594	446,529	910,123

(*a*) Including Aborigines. (*b*) Excess of births registered over deaths registered. (*c*) Includes Aborigines from 1 January 1967; see NOTE on page 124. (*d*) Interstate and overseas. (*e*) The numbers appearing in the first three columns are Census figures. See letterpress *Aboriginal Population* on pages 139-40.

The following table shows the estimated population of each State and Territory of Australia at 31 December of the years 1964 to 1968. The estimates refer to *total* population (see letterpress preceding previous table).

POPULATION ESTIMATES (*a*)—STATES AND TERRITORIES

State or Territory	Estimated population at 31 December—				
	1964	1965	1966	1967	1968
New South Wales	4,142,121	4,211,049	4,273,307	*4,346,815	4,428,760
Victoria	3,137,921	3,195,860	3,249,870	*3,303,257	3,355,761
Queensland	1,626,525	1,659,423	1,687,882	1,718,266	1,751,828
South Australia	1,051,954	1,082,958	1,104,590	1,118,477	1,136,387
Western Australia	818,121	838,248	862,685	892,763	930,758
Tasmania	366,508	369,608	373,905	379,628	386,031
Northern Territory	52,754	55,464	58,099	*61,507	66,555
Australian Capital Territory	84,525	92,798	100,049	108,176	117,221
AUSTRALIA	11,280,429	11,505,408	11,710,387	11,928,889	12,173,301

(*a*) Including Aborigines. * Revised.

The following table shows the estimated population of Western Australia at ten-yearly intervals from 1830 to 1960, and annually from 1964 to 1968. The estimates for 1960 and earlier exclude full-blood Aborigines. The figures shown for 1964 and later refer to *total* population, *i.e.* including Aborigines; see letterpress *Population Estimates* on previous page.

ESTIMATED POPULATION (*a*)—1830–1968

At 31 December—	Males	Females	Persons	Increase (*b*)		
				Number	Per cent	Average annual rate (per cent)
1830	877	295	1,172	....	....	....
1840	1,434	877	2,311	1,139	97·18	7·03
1850	3,576	2,310	5,886	3,575	154·69	9·80
1860	9,597	5,749	15,346	9,460	160·72	10·06
1870	15,511	9,624	25,135	9,789	63·79	5·06
1880	16,985	12,576	29,561	4,426	17·61	1·64
1890	28,854	19,648	48,502	18,941	64·07	5·08
1900	110,088	69,879	179,967	131,465	271·05	14·01
1910	157,971	118,861	276,832	96,865	53·82	4·40
1920	176,895	154,428	331,323	54,491	19·68	1·81
1930	232,868	198,742	431,610	100,287	30·27	2·68
1940	248,734	225,342	474,076	42,466	9·84	0·94
1950	294,758	277,891	572,649	98,573	20·79	1·91
1960	372,665	358,368	731,033	158,384	27·66	2·47
1964	417,023	401,098	818,121	19,226	2·41	....
1965	427,330	410,918	838,248	20,127	2·46	....
1966	439,680	423,005	862,685	24,437	2·92	....
1967	454,743	438,020	892,763	30,078	3·49	....
1968	473,779	456,979	930,758	37,995	4·26	....
Five years ended 31 December 1968				131,863	16·51	3·10

(*a*) Estimates for 1960 and earlier exclude full-blood Aborigines; those for 1964 and later refer to *total* population, *i.e.* including Aborigines. (*b*) Decennial increases during the period 1830–1960; annual increases from 1964 to 1968.

ABORIGINAL POPULATION

Reference is made on page 125 to the exclusion of *full-blood* Aborigines from the census tabulations. Aborigines have, however, been enumerated in all censuses of the Commonwealth, although the degree of coverage and information obtained have varied substantially

since 1911. Since the Census taken in 1933, the adequacy of the particulars obtained has improved progressively, as a result of an increasing number of Aborigines coming into contact with more populated areas.

At the 1966 Census extensive arrangements were made to obtain as full a coverage of full-blood Aborigines as possible and to enumerate fully those Aborigines 'out of contact'. Throughout Australia the assistance of Aboriginal welfare bodies, mission superintendents, sheep and cattle station owners, patrol officers and police was sought in an effort to include all Aborigines and to obtain complete information about them.

Prior to the 1966 Census, Aborigines 'out of contact' were not enumerated and estimates of these were made by authorities responsible for Aboriginal welfare. It is estimated that, at the 1961 Census, 2,000 full-blood Aborigines in Western Australia and 1,944 in the Northern Territory were not contacted by census collectors.

The total numbers of full-blood Aborigines and half-blood Aborigines enumerated at the Censuses of 1961 and 1966 are shown in the following tables. For census purposes, a full-blood Aboriginal is defined as a person who is described on the census schedule as having more than one-half Aboriginal blood; a half-blood Aboriginal is a person who is described as having one-half Aboriginal blood and one-half European blood.

Additional information concerning Census characteristics of the Aboriginal population is contained in the Census Bulletin *The Aboriginal Population of Australia* published by the Commonwealth Statistician, Canberra.

ABORIGINAL POPULATION (*a*)—METROPOLITAN, OTHER URBAN, AND RURAL (*b*)
WESTERN AUSTRALIA AND AUSTRALIA: CENSUS, 30 JUNE 1966

Area	Western Australia				Australia			
	Males	Females	Persons		Males	Females	Persons	
			Total	Per cent of total			Total	Per cent of total
Urban—								
Metropolitan	376	423	799	4·33	2,590	2,749	5,339	6·66
Other	1,794	1,877	3,671	19·91	8,187	8,370	16,557	20·64
Total	2,170	2,300	4,470	24·24	10,777	11,119	21,896	27·30
Rural	7,335	6,634	13,969	75·76	30,207	28,104	58,311	72·70
GRAND TOTAL	9,505	8,934	18,439	100·00	40,984	39,223	80,207	100·00

(*a*) Full-blood Aborigines and half-blood Aborigines; see letterpress immediately preceding table. (*b*) See letterpress on page 131.

ABORIGINAL POPULATION (*a*)—STATISTICAL DIVISIONS
WESTERN AUSTRALIA: CENSUS, 30 JUNE 1966

Statistical Division	Males	Females	Persons	
			Total	Per cent of total
Perth Statistical Division	576	587	1,163	6·31
Other Divisions—				
South-West	248	240	488	2·65
Southern Agricultural	616	592	1,208	6·55
Central Agricultural	918	837	1,755	9·52
Northern Agricultural	791	796	1,587	8·61
Eastern Goldfields	1,079	1,083	2,162	11·73
Central	633	513	1,146	6·22
North-West	616	543	1,159	6·29
Pilbara	984	882	1,866	10·12
Kimberley	3,044	2,861	5,905	32·02
Total	8,929	8,347	17,276	93·69
WESTERN AUSTRALIA	9,505	8,934	18,439	100·00

(*a*) Full-blood Aborigines and half-blood Aborigines; see letterpress preceding previous table.

ABORIGINAL POPULATION (*a*)—STATES AND TERRITORIES CENSUSES, 1954 TO 1966

State or Territory	Census, 30 June 1954			Census, 30 June 1961			Census, 30 June 1966		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
New South Wales	6,278	5,935	12,213	7,494	7,222	14,716	7,343	6,876	14,219
Victoria	691	704	1,395	899	897	1,796	856	934	1,790
Queensland	8,368	7,781	(*b*)16,149	10,146	9,550	19,696	9,644	9,359	19,003
South Australia	1,675	1,537	(*b*) 3,212	2,607	2,277	4,884	2,914	2,591	5,505
Western Australia	6,564	6,135	(*b*)12,699	8,351	7,925	(*b*)16,276	9,505	8,934	18,439
Tasmania	50	43	93	24	14	38	19	17	36
Northern Territory	5,990	5,798	(*b*)11,788	9,013	8,747	(*b*)17,760	10,651	10,468	21,119
Australian Capital Territory	100	73	173	78	65	143	52	44	96
AUSTRALIA	29,716	28,006	(*b*)57,722	38,612	36,697	(*b*)75,309	40,984	39,223	80,207

(*a*) Full-blood Aborigines and half-blood Aborigines; see letterpress on pages 139-40. Enumerated population only; see also note (*b*). (*b*) Prior to the 1966 Census, estimates of the numbers of Aborigines ' out of contact ', and therefore not enumerated, were made by authorities responsible for native welfare. It is estimated that at the 1954 Census 12,956 Aborigines (2,311 in Queensland, 1,760 in South Australia, 3,516 in Western Australia, and 5,369 in the Northern Territory) were not contacted by census collectors and thus not included in the Census. However, increasing numbers were coming into contact and it is estimated that at the 1961 Census 3,944 Aborigines (2,000 in Western Australia and 1,944 in the Northern Territory) were not contacted by census collectors.

ABORIGINAL POPULATION (*a*)—AGE DISTRIBUTION WESTERN AUSTRALIA AND AUSTRALIA: CENSUS, 30 JUNE 1966

Age last birthday (years)	Western Australia				Australia			
	Males	Females	Persons		Males	Females	Persons	
			Total	Per cent of total			Total	Per cent of total
0– 4	1,513	1,447	2,960	16·05	6,902	6,700	13,602	16·96
5– 9	1,397	1,345	2,742	14·87	6,043	5,858	11,901	14·84
10–14	1,130	1,137	2,267	12·29	4,962	4,941	9,903	12·35
15–19	776	762	1,538	8·34	3,633	3,650	7,283	9·08
20–24	672	591	1,263	6·85	3,057	2,776	5,833	7·27
25–29	553	539	1,092	5·92	2,579	2,560	5,139	6·41
30–34	530	541	1,071	5·81	2,373	2,419	4,792	5·97
35–39	483	414	897	4·86	2,074	2,057	4,131	5·15
40–44	431	380	811	4·40	1,804	1,668	3,472	4·33
45–49	364	314	678	3·68	1,530	1,344	2,874	3·58
50–54	285	254	539	2·92	1,199	1,056	2,255	2·81
55–59	259	202	461	2·50	940	842	1,782	2·22
60–64	202	256	458	2·48	790	812	1,602	2·00
65–69	281	205	486	2·64	886	697	1,583	1·97
70–74	178	113	291	1·58	581	398	979	1·22
75 and over	112	101	213	1·16	388	322	710	0·89
Not stated	339	333	672	3·64	1,243	1,123	2,366	2·95
Total	9,505	8,934	18,439	100·00	40,984	39,223	80,207	100·00
Under 21	4,969	4,820	9,789	53·09	22,208	21,802	44,010	54·87
21–64	3,626	3,362	6,988	37·90	15,678	14,881	30,559	38·10
65 and over	571	419	990	5·37	1,855	1,417	3,272	4·08
Not stated	339	333	672	3·64	1,243	1,123	2,366	2·95
Total	9,505	8,934	18,439	100·00	40,984	39,223	80,207	100·00

(*a*) Full-blood Aborigines and half-blood Aborigines; see letterpress on pages 139-40.

Chapter IV—continued

Part 2—Births, Deaths and Marriages

NOTE. Reference is made on page 125 to the repeal, with effect from 10 August 1967, of section 127 of the Australian Constitution. As a consequence of this repeal, all vital statistics, which previously excluded births, deaths and marriages of full-blood Aborigines, now include events among the total population. These new statistics were first compiled in respect of the March quarter of 1967. Accordingly, all figures shown in this Part for 1967 and later include particulars of Aborigines, those for 1966 and earlier periods remaining on the old basis.

A line drawn across a column in the tables indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to events among the total population, i.e. *including Aborigines.*

THE REGISTRATION SYSTEM

Compulsory registration of births, deaths and marriages in Western Australia was originally provided for by legislation of the year 1841. The Statutes currently in force are the *Registration of Births, Deaths and Marriages Act, 1961-1965* (State) and the *Marriage Act* 1961-1966 (Commonwealth). For administrative purposes, the State is divided into twenty-seven Registry Districts, each having a District Registrar. Particulars of births, deaths and marriages reported to the District Registrars are sent to the Registrar-General at Perth, where a central registry office has been maintained since 1841. Local registers are kept at each district office.

Births are required to be registered within sixty days of the event, and must be notified by the father, the mother or the occupier of the premises where the birth took place. Special provisions and penalties apply to notification and registration after the expiration of the sixty-day period.

A stillbirth is required to be registered both as a birth and a death. From 1 January 1968 the term ' stillbirth ', for registration purposes, refers to a child of at least twenty weeks' gestation not born alive. Previously it was restricted to cases where the gestation period was at least twenty-eight weeks.

Deaths are required to be registered within fourteen days. Notification must be given by the person who disposes of the body or by the occupier of the premises where the death occurred. As in the case of births, special provisions and penalties exist for the late registration of a death.

Marriages are celebrated according to the provisions of the *Marriage Act* 1961-1966 (Commonwealth) by ministers of religion registered under the Act, or by District Registrars. Ministers are required to lodge a marriage certificate with the District Registrar for registration within fourteen days of the celebration of a marriage. A penalty fee is provided for registrations after fourteen days from the date of marriage.

Statistics of births, deaths and marriages are prepared from the registration documents.

The following table shows, for the years 1966, 1967 and 1968, the number of births, deaths and marriages registered in Western Australia, classified according to Statistical Divisions. The figures do not necessarily represent the number of such events which actually occurred in a particular Statistical Division during each year, since births are allocated to the usual place of residence of the mother, deaths to the usual place of residence of the deceased, and marriages to the usual place of residence of the bridegroom. Further, the statistics are compiled according to date of registration and not date of occurrence.

BIRTHS, DEATHS AND MARRIAGES
NUMBERS REGISTERED—STATISTICAL DIVISIONS (*a*) (*b*) (*c*)

Statistical Division (*a*)	Births (*d*)			Deaths (*e*)			Marriages		
	1966	1967	1968	1966	1967	1968	1966	1967	1968
Perth Statistical Division	10,463	10,952	12,018	4,883	4,855	5,264	4,879	5,218	5,590
Other Divisions—									
South-West	1,475	1,583	1,580	514	523	571	559	561	636
Southern Agricultural	1,026	1,082	1,161	298	305	366	329	360	398
Central Agricultural	1,384	1,476	1,470	357	327	336	470	462	482
Northern Agricultural	1,055	1,053	1,167	244	226	254	303	335	374
Eastern Goldfields	866	912	1,014	304	267	344	295	288	359
Central	128	144	163	39	44	53	29	30	31
North-West	201	229	264	41	56	48	36	62	67
Pilbara	157	198	292	38	44	89	49	47	88
Kimberley	252	394	412	54	132	143	52	67	61
Total	6,544	7,071	7,523	1,889	1,924	2,204	2,122	2,212	2,496
WESTERN AUSTRALIA	17,007	18,023	19,541	6,772	6,779	7,468	7,001	7,430	8,086

(*a*) For component local government areas, see map at back of Year Book. (*b*) See letterpress immediately preceding table. (*c*) See *NOTE* at top of previous page. (*d*) Live births. (*e*) Stillbirths are not included; see next table.

BIRTHS

Statistics of births in each of the five years 1964 to 1968 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole are shown in the following table.

BIRTHS REGISTERED (*a*)

Year	Live births					Stillbirths (*d*)
	Males (*b*)	Females (*b*)	Persons (*b*)	Ex-nuptial births (*c*)	Multiple births (*c*)	
PERTH STATISTICAL DIVISION						
1964	5,167	4,858	10,025	717	180	97
1965	5,035	4,866	9,901	764	(*e*) 192	110
1966	5,383	5,080	10,463	867	207	113
1967	5,681	5,271	10,952	917	242	118
1968	6,188	5,830	12,018	990	(*e*) 235	155
OTHER DIVISIONS						
1964	3,403	3,257	6,660	594	133	73
1965	3,245	3,040	6,285	675	149	71
1966	3,417	3,127	6,544	740	132	55
1967	3,641	3,430	7,071	1,027	(*f*) 155	70
1968	3,882	3,641	7,523	1,024	(*e*) 169	88
WESTERN AUSTRALIA						
1964	8,570	8,115	16,685	1,311	313	170
1965	8,280	7,906	16,186	1,439	(*e*) 341	181
1966	8,800	8,207	17,007	1,607	339	168
1967	9,322	8,701	18,023	1,944	(*f*) 397	188
1968	10,070	9,471	19,541	2,014	(*f*) 404	(*d*) 243

(*a*) See *NOTE* on previous page. (*b*) Includes ex-nuptial births and multiple births. (*c*) Figures represent the *number of children* live-born. (*d*) Figures for 1968 refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks. (*e*) Includes one case of triplets. (*f*) Includes two cases of triplets.

The following table shows the number of nuptial confinements during 1968, classified according to age group of mother and number of previous issue.

NUPTIAL CONFINEMENTS—AGE OF MOTHER AND PREVIOUS ISSUE, 1968 (*a*)

Previous issue (number)	Age of mother (years)							Total married mothers	
	Under 20	20–24	25–29	30–34	35–39	40–44	45 and over	Number	Per cent
0	1,335	3,279	1,279	299	110	41	5	6,348	36·59
1	270	2,244	1,839	504	134	25	....	5,016	28·91
2	21	718	1,459	721	189	41	2	3,151	18·16
3	2	145	579	505	200	49	4	1,484	8·55
4	....	33	178	254	149	40	2	656	3·78
5	....	9	73	126	91	23	4	326	1·88
6	....	1	23	62	53	22	....	161	0·93
7	....	....	13	30	36	18	3	100	0·58
8	....	....	2	11	20	4	....	37	0·21
9	....	....	3	7	12	9	....	31	0·18
10 or more	....	....	....	9	18	9	2	38	0·22
Not stated	....	....	....	....	....	....	....	....	....
Total married mothers	1,628	6,429	5,448	2,528	1,012	281	22	17,348	100·00

(*a*) See *NOTE* on page 142.

The following table shows the number of nuptial confinements during 1968, classified according to the relative ages of parents.

NUPTIAL CONFINEMENTS—RELATIVE AGES OF PARENTS, 1968 (*a*)

Age of father (years)	Age of mother (years)							Total fathers	
	Under 20	20–24	25–29	30–34	35–39	40–44	45 and over	Number	Per cent
Under 20	286	55	....	....	....	....	....	341	1·97
20–24	1,101	2,580	211	8	2	....	....	3,902	22·49
25–29	205	3,012	2,573	227	11	4	....	6,032	34·77
30–34	31	641	2,036	1,115	116	10	....	3,949	22·76
35–39	3	106	485	857	426	39	2	1,918	11·06
40–44	1	28	106	240	328	124	4	831	4·79
45–49	....	5	24	48	97	67	8	249	1·44
50 and over	1	1	13	33	32	37	8	125	0·72
Not stated	....	1	....	....	....	....	....	1	....
Total married mothers—									
Number	1,628	6,429	5,448	2,528	1,012	281	22	17,348	....
Per cent	9·38	37·06	31·40	14·57	5·83	1·62	0·13	....	100·00

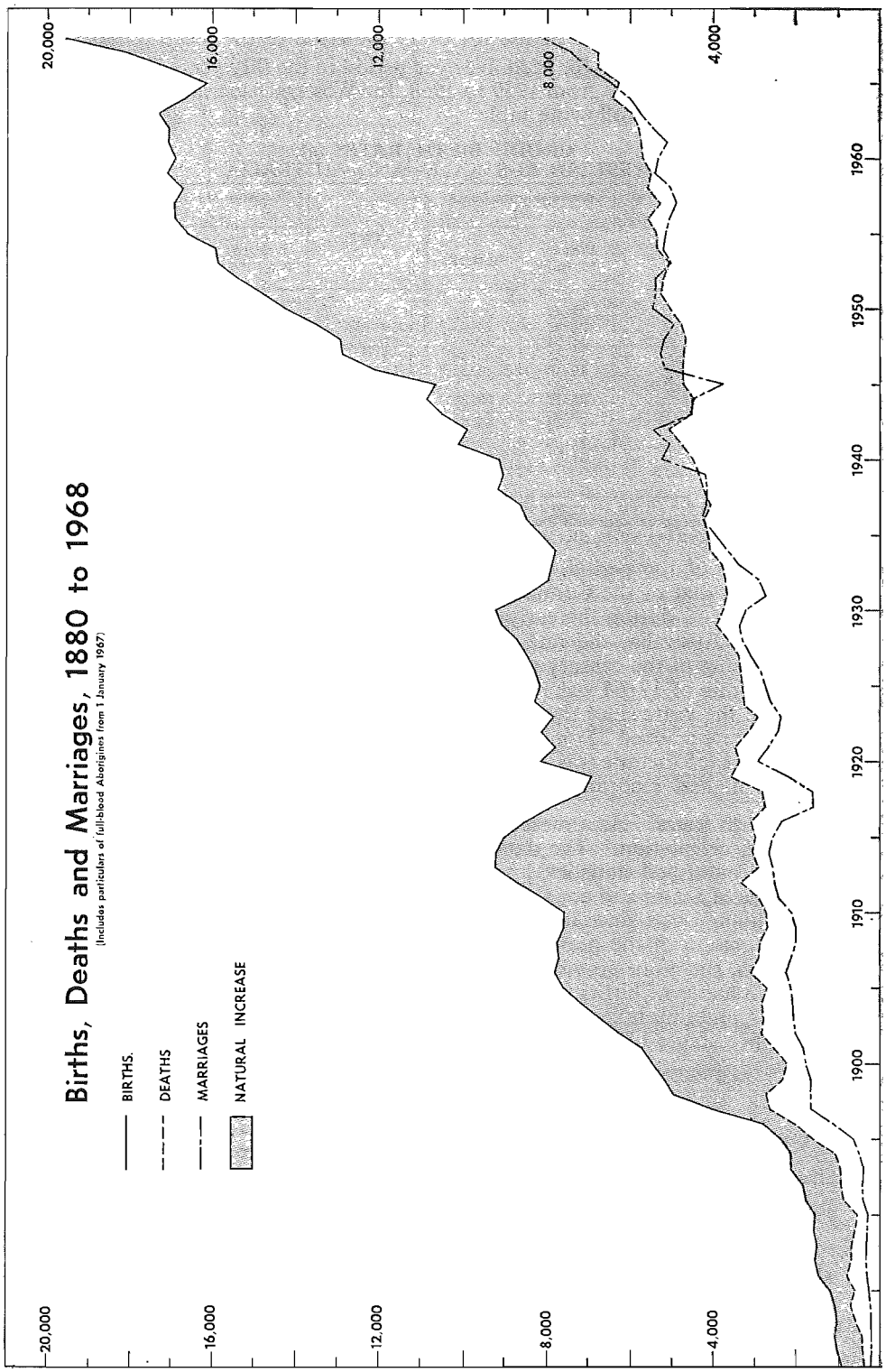
(*a*) See *NOTE* on page 142.

The ages of mothers of ex-nuptial children born during each of the years 1964 to 1968 are shown in the following table.

EX-NUPTIAL BIRTHS—AGE OF MOTHER (*a*)

Age of mother (years)	1964	1965	1966	1967	1968
Under 14	1	2	2	5	5
14	8	7	11	7	15
15	30	30	34	44	49
16	78	87	102	117	103
17	119	131	141	177	173
18	108	147	170	221	197
19	124	129	157	194	215
20	105	114	126	170	144
21–24	277	296	348	383	446
25–29	206	218	228	291	319
30–34	156	147	140	161	178
35–39	74	95	95	117	115
40–44	24	34	41	40	45
45 and over	1	2	12	17	10
Total, ex-nuptial births	1,311	1,439	1,607	1,944	2,014

(*a*) See *NOTE* on page 142.


Births, Deaths and Marriages, 1880 to 1968
(Includes particulars of full-blood Aborigines from 1 January 1967)
BIRTHS.
DEATHS
MARRIAGES
NATURAL INCREASE
20,000
16,000
12,000
8,000
4,000
1900
1910
1920
1930
1940
1950
1960

Crude Birth Rates. The crude birth rate in any period may be defined as the number of live births occurring during the period for every thousand of the mean population.

The average annual rates for each five-year period in the fifty years from 1916 to 1965 and the rates for single years from 1959 to 1968, for Western Australia and Australia as a whole, are shown in the following table.

CRUDE BIRTH RATES (*a*)
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (*b*)		Year	Annual rate (*b*)	
	Western Australia	Australia		Western Australia	Australia
1916–20	24·49	25·35	1959	24·04	22·57
1921–25	22·85	23·86	1960	23·41	22·42
1926–30	21·54	20·98	1961	23·15	22·85
1931–35	18·36	16·94	1962	22·58	22·15
1936–40	19·16	17·52	1963	22·23	21·61
1941–45	21·72	20·28	1964	20·93	20·60
1946–50	25·24	23·39	1965	19·85	19·65
1951–55	25·37	22·86	1966	20·31	19·27
1956–60	24·20	22·59			
1961–65	21·71	21·34	1967	20·55	19·40
			1968	21·47	20·00

(*a*) See *NOTE* on page 142. (*b*) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census.

In each year of the period under review, Western Australia's crude birth rate has been higher than that of the Commonwealth with the exception of the latter part of the first World War and during the early 1920s.

In Western Australia, the rate showed a marked and almost continuous decrease from the beginning of the century to the depression of thirty years later when the unprecedentedly low rate of 17·64 was recorded in 1934 (see Graph—*Rates of Birth, Death and Marriage*). In the years since then a fairly well-sustained improvement was evident until 1952 when the rate reached 25·66, its highest level since 1917. Since 1952 there has been a decline and in 1965 the rate was 19·85, the lowest since 1942. In 1968 the rate increased to 21·47, the highest recorded since 1963.

Age-specific Birth Rates. As a measure of fertility, the crude birth rate has the advantage of simplicity in calculation. The data necessary for its computation are usually readily available from published statistics, and it is therefore useful in comparing the fertility of the populations of States and countries for which no additional data are available. However, it is of limited use, since it does not take into account the important factors of age and sex composition of the population. Age-specific birth rates, which do have regard to these factors, therefore provide a better measure of fertility. Age-specific birth rates represent the number of births to women of specified ages per thousand women of those particular ages, and thus take cognisance of the variations in fertility experienced by women at the successive stages of their child-bearing life.

AGE-SPECIFIC BIRTH RATES (*a*) (*b*)—WESTERN AUSTRALIA

Year	Age group (years)						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
1947	32·63	187·14	206·24	146·72	84·97	28·63	2·06
1954	42·74	231·09	217·77	135·74	71·71	23·61	1·52
1961	47·07	246·94	231·92	127·38	61·82	20·55	1·17
1966	53·77	204·07	198·03	102·09	45·68	12·98	1·13
1967	55·71	195·77	192·96	103·03	44·02	12·85	1·29
1968	55·50	196·39	199·15	102·61	42·74	12·42	1·30

(*a*) Number of live births registered per 1,000 women in each age group. Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and 1968 are based on estimates of the age distribution of the female population at 30 June of each year and are subject to revision after the 1971 Census. (*b*) See *NOTE* on page 142.

For purposes of comparison with Western Australian experience, age specific birth rates for Australia as a whole are given in the following table.

AGE-SPECIFIC BIRTH RATES (*a*) (*b*)—AUSTRALIA

Year	Age group (years)						
	15–19	20–24	25–29	30–34	35–39	40–44	45–49
1947	32·06	166·18	186·60	129·99	75·02	23·52	1·81
1954	39·19	197·13	194·02	121·76	64·43	20·16	1·47
1961	47·35	225·81	221·21	131·11	63·38	19·17	1·41
1966	48·89	173·07	183·88	105·12	50·62	14·16	1·04
1967	48·37	170·76	184·97	102·77	47·85	13·49	1·16
1968	48·88	173·64	190·80	103·30	46·74	12·89	1·12

(*a*) Number of live births registered per 1,000 women in each age group. Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and 1968 are based on estimates of the age distribution of the female population at 30 June of each year and are subject to revision after the 1971 Census. (*b*) See *NOTE* on page 142.

Gross and Net Reproduction Rates. The gross reproduction rate is derived from fertility rates representing the number of *female* births to women of specified ages per thousand women of those particular ages. It provides a measure of the number of female children who would be born, on the average, to every woman assuming that she lives through the whole of the child-bearing period and that the basic fertility rates remain unaltered throughout.

The gross reproduction rate assumes that all females survive to the end of their child-bearing capacity. A more accurate measure, which takes into account the effect of mortality among women during this period is the net reproduction rate. This rate represents the average number of female children who would be born to women during their lifetime if they were subject in each succeeding year of life to the fertility and mortality rates on which the calculation is based. The net reproduction rate is a measure of the number of women who, in the next generation, will replace the women of reproductive age in the current generation. It provides a useful indication of likely future population trends. A rate remaining stationary at unity indicates an ultimately static population. If a rate greater than unity is maintained, an ultimate increase of population will result, while a continuing rate less than unity will lead to an ultimate decline.

GROSS AND NET REPRODUCTION RATES (*a*) (*b*)
WESTERN AUSTRALIA AND AUSTRALIA

Year	Gross reproduction rate		Net reproduction rate	
	Western Australia	Australia	Western Australia	Australia
1947	1·683	1·494	(*c*) 1·595	(*c*) 1·416
1954	1·772	1·559	(*d*) 1·704	(*d*) 1·499
1961	1·785	1·728	(*e*) 1·730	(*e*) 1·672
1966	1·490	1·400	(*e*) 1·445	(*e*) 1·355
1967	1·465	1·387	(*e*) 1·418	(*e*) 1·342
1968	1·477	1·406	(*e*) 1·430	(*e*) 1·360

(*a*) Rates for the years 1947 to 1966 are based on Census results. Those for 1967 and 1968 are based on estimates of the age distribution of the female population at 30 June of each year, and are subject to revision after the 1971 Census. (*b*) See *NOTE* on page 142. (*c*) Based on 1946–48 mortality experience. (*d*) Based on 1953–55 mortality experience. (*e*) Based on 1960–62 mortality experience.

DEATHS

Statistics of deaths in each of the five years 1964 to 1968 in the Perth Statistical Division, the rest of the State, and in Western Australia as a whole appear in the following table. Infant deaths (*i.e.* those occurring in the first year of life) are also shown.

DEATHS REGISTERED (*a*)

Year	Deaths (*b*)			Infant deaths (*c*)		
	Males	Females	Persons	Males	Females	Persons
PERTH STATISTICAL DIVISION						
1964	2,648	2,054	4,702	97	63	160
1965	2,608	1,958	4,566	97	72	169
1966	2,689	2,194	4,883	99	72	171
1967	2,748	2,107	4,855	84	64	148
1968	2,941	2,323	5,264	115	90	205
OTHER DIVISIONS						
1964	1,090	637	1,727	83	85	168
1965	1,107	601	1,708	100	82	182
1966	1,232	657	1,889	85	73	158
1967	1,208	716	1,924	105	61	166
1968	1,397	807	2,204	121	72	193
WESTERN AUSTRALIA						
1964	3,738	2,691	6,429	180	148	328
1965	3,715	2,559	6,274	197	154	351
1966	3,921	2,851	6,772	184	145	329
1967	3,956	2,823	6,779	189	125	314
1968	4,338	3,130	7,468	236	162	398

(*a*) See *NOTE* on page 142. (*b*) Including infant deaths. (*c*) Deaths occuring in the first year of life.

Crude Death Rates. The crude death rate is perhaps the most common measure of mortality, and is derived by relating the deaths occurring in a period to the mean population for that period. It is usually expressed as number of deaths per thousand of mean population.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1968 are compared in the following table.

CRUDE DEATH RATES (*a*)
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (*b*)		Year	Annual rate (*b*)	
	Western Australia	Australia		Western Australia	Australia
1916–20	9·93	10·78	1959	7·72	8·87
1921–25	9·17	9·52	1960	7·88	8·61
1926–30	8·91	9·26	1961	7·77	8·47
1931–35	8·83	9·00	1962	7·69	8·71
1936–40 (*c*)	9·22	9·63	1963	7·68	8·70
1941–45 (*c*)	9·86	9·96	1964	8·06	9·04
1946–50 (*c*)	9·23	9·74	1965	7·70	8·79
1951–55	8·49	9·25	1966	8·09	8·99
1956–60	7·90	8·78			
1961–65	7·78	8·75	1967	7·73	8·69
			1968	8·21	9·10

(*a*) See *NOTE* on page 142. (*b*) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census. (*c*) Excludes deaths of members of defence forces from September 1939 to June 1947.

In the early years of the century, the Western Australian rate was higher than that for Australia as a whole, but fell below the Australian average in 1909. Since that time, the rate for Western Australia has, with very few exceptions, remained lower than that for the Commonwealth.

Western Australia's crude death rate for the year 1902 was 13·79 per thousand of the mean population but by 1931 it had fallen to 8·51 (see Graph—*Rates of Birth, Death and Marriage*). After that year, the rate increased until it reached 10·65 in 1942. Since then there was a general decline until 1963 when the rate was 7·68, the lowest ever recorded in Western Australia. The rate for 1968 was 8·21 per thousand of mean population.

Standardised Death Rates. The crude death rate expresses simply the number of deaths occurring in a population during any period as a proportion of the mean population for that period. Although this rate is useful as a measure of the absolute level of mortality, its value is necessarily restricted when comparing the mortality in different communities in the same period, or in one community at different times.

The effect on the crude death rate of the presence in a community of a high proportion of young people or of aged people, or of a high or low masculinity, will be readily appreciated. To devise an adequate measure of comparative mortality, it is therefore necessary to select a 'standard' population to which the varying mortality experiences may be referred. A standard population compiled by the International Statistical Institute, based upon the age and sex distribution of the population of nineteen European countries at their censuses nearest to the year 1900, has been used as the basis of the standardised death rates for Western Australia and Australia given in the next paragraph. The rate is computed by applying to each sex and age group in the standard population, the death rates actually recorded in the corresponding groups of the State and Australian populations. The sum of these results represents the number of deaths which would have occurred in the standard population if it had been exposed to the same risks of mortality. The standardised death rate is derived by expressing this number in terms of 'per thousand of the standard population'.

For the Census years 1921, 1933, 1947, 1954, 1961 and 1966 the standardised death rates for Western Australia were 11·88, 8·74, 7·28, 6·71, 6·02 and 6·25, and the corresponding rates for Australia as a whole were 10·57, 8·61, 7·31, 6·87, 6·27 and 6·53. These rates have been compiled on a basis which excludes full-blood Aborigines; see *NOTE* on page 142.

Causes of Death. Statistics of causes of death provide important numerical facts by which to evaluate the varying health conditions and needs of different countries. In order to enable valid international comparisons, it is necessary that each country present its statistics of causes of death in a uniform manner. The first classification of causes of death to be adopted internationally was that compiled by Dr J. Bertillon at the request of the International Statistical Institute meeting in Vienna in 1891. Subsequently this classification was periodically revised by the Institute in collaboration with the League of Nations Health Organization. More recently revisions have been carried out by a Committee of the World Health Organization.

PRINCIPAL CAUSES OF DEATH, 1968 (*a*)

International number	Cause of death (*b*) (*c*)	Males	Females	Persons	Per cent of all deaths	Rate (*d*)
000–136	Infective and parasitic diseases—					
010–012	Tuberculosis of respiratory system	7	3	10	0·1	1·1
	Other infective and parasitic diseases	51	56	107	1·4	11·8
140–239	Neoplasms—					
140–209	Malignant—					
150–159	Digestive organs and peritoneum	204	185	389	5·2	42·7
162	Trachea, bronchus and lung	217	40	257	3·4	28·2
174	Breast	2	103	105	1·4	11·5
180–189	Genito-urinary organs	95	91	186	2·5	20·4
204–207	Leukaemia and aleukaemia	28	19	47	0·6	5·2
	Other malignant	149	97	246	3·3	27·0
210–239	Benign and unspecified	9	6	15	0·2	1·6
240–279	Endocrine, nutritional and metabolic diseases—					
250	Diabetes mellitus	58	79	137	1·8	15·1
	Other	17	8	25	0·3	2·7
280–289	Diseases of blood and blood-forming organs	5	11	16	0·2	1·8
290–315	Mental disorders	28	14	42	0·6	4·6

PRINCIPAL CAUSES OF DEATH, 1968 (*a*)—*continued*

International number	Cause of death (*b*) (*c*)	Males	Females	Persons	Per cent of all deaths	Rate (*d*)
320–389	Diseases of the nervous system and sense organs	48	39	87	1·2	9·6
390–458	Diseases of the circulatory system—					
393–398	Rheumatic heart disease	51	48	99	1·3	10·9
410–414	Ischaemic heart disease	1,371	851	2,222	29·8	244·1
430–438	Cerebrovascular disease	391	457	848	11·4	93·2
	Other	286	319	605	8·1	66·5
460–519	Diseases of the respiratory system—					
480–486	Pneumonia	169	168	337	4·5	37·0
490–493	Bronchitis, emphysema and asthma	204	31	235	3·1	25·8
	Other	35	23	58	0·8	6·4
520–577	Diseases of the digestive system	101	58	159	2·1	17·5
580–629	Diseases of the genito-urinary system	67	47	114	1·5	12·5
630–678	Complications of pregnancy, childbirth and the puerperium	....	5	5	0·1	0·5
680–709	Diseases of the skin and subcutaneous tissue	3	....	3	....	0·3
710–738	Diseases of the musculoskeletal system and connective tissue	17	16	33	0·4	3·6
740–759	Congenital anomalies	53	53	106	1·4	11·6
760–779	Certain causes of perinatal morbidity and mortality	139	83	222	3·0	24·4
780–796	Ill-defined conditions	30	37	67	0·9	7·4
800–999	Accidents, poisonings and violence—					
810–823	Motor vehicle accidents	245	81	326	4·4	35·8
850–877	Accidental poisoning	11	5	16	0·2	1·8
880–887	Accidental falls	36	30	66	0·9	7·3
950–959	Suicide and self-inflicted injury	82	35	117	1·6	12·9
	Other	129	32	161	2·2	17·7
	All causes	4,338	3,130	7,468	100·0	820·5

(*a*) See *NOTE* on page 142. (*b*) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (*c*) Defined, in part, as the disease or injury which initiated the train of morbid events leading directly to death. (*d*) Per 100,000 of mean population; subject to revision after the 1971 Census.

The figures in the previous table have been compiled on the basis of the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision, 1965), operative from 1 January 1968. The term ' principal cause of death ', as used in this table and elsewhere in this Part, means ' (a) the disease or injury which initiated the train of morbid events leading directly to death, or (b) the circumstances of the accident or violence which produced the fatal injury '.

The principal causes of deaths in age groups and the number and proportion (per cent) of total deaths from specified causes are shown in the following table.

PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1968 (*a*)

International number	Age group and cause of death (*b*)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (*c*)
	Under 1 year	**398**	**100·0**	....	....
000–136	Infective and parasitic diseases	38	9·5	117	32·5
480–486	Pneumonia	37	9·3	337	11·0
740–759	Congenital anomalies	68	17·1	106	64·2
760–769	Maternal causes, including difficult labour	106	26·6	106	100·0
770	Conditions of placenta	31	7·8	31	100·0
776	Anoxic and hypoxic conditions n.e.c.	34	8·5	34	100·0
	Other causes	84	21·1	....	....
	1–4 years	**82**	**100·0**	....	....
000–136	Infective and parasitic diseases	13	15·9	117	11·1
140–209	Malignant neoplasms (*d*)	6	7·3	1,230	0·5
480–486	Pneumonia	12	14·6	337	3·6
740–759	Congenital anomalies	6	7·3	106	5·7
800–929	Accidents	32	39·0	551	5·8
	Other causes	13	15·9	....	....
	5–14 years	**84**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	11	13·1	1,230	0·9
480–486	Pneumonia	5	6·0	337	1·5
740–759	Congenital anomalies	10	11·9	106	9·4
800–929	Accidents	38	45·2	551	6·9
	Other causes	20	23·8	....	....

PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1968 (*a*)—*continued*

International number	Age group and cause of death (*b*)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (*c*)
	15–19 years	**91**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	7	7·7	1,230	0·7
740–759	Congenital anomalies	4	4·4	106	3·8
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	54	59·3	326	16·6
950–959	Suicide	7	7·7	117	6·0
	Other	6	6·6	243	2·5
	Other causes	13	14·3	....	....
	20–24 years	**106**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	8	7·5	1,230	0·7
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	58	54·7	326	17·8
950–959	Suicide	10	9·4	117	8·5
	Other	17	16·0	243	7·0
	Other causes	13	12·3	....	....
	25–34 years	**171**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	22	12·9	1,230	1·8
390–458	Diseases of circulatory system	12	7·0	3,774	0·3
740–759	Congenital anomalies	5	2·9	106	4·7
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	55	32·2	326	16·9
950–959	Suicide	25	14·6	117	21·4
	Other	27	15·8	243	11·1
	Other causes	25	14·6	....	....
	35–44 years	**241**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	45	18·7	1,230	3·7
393–398, 402, 404, 410–429	Heart diseases	57	23·7	2,647	2·2
430–438	Cerebrovascular diseases	12	5·0	848	1·4
460–519	Diseases of respiratory system	10	4·1	630	1·6
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	28	11·6	326	8·6
950–959	Suicide	23	9·5	117	19·7
	Other	23	9·5	243	9·5
	Other causes	43	17·8	....	....
	45–54 years	**537**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	145	27·0	1,230	11·8
393–398, 402, 404, 410–429	Heart diseases	172	32·0	2,647	6·5
430–438	Cerebrovascular diseases	31	5·8	848	3·7
460–519	Diseases of respiratory system	39	7·3	630	6·2
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	34	6·3	326	10·4
950–959	Suicide	20	3·7	117	17·1
	Other	17	3·2	243	6·6
	Other causes	79	14·7	....	....
	55–64 years	**1,211**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	307	25·4	1,230	25·0
393–398, 402, 404, 410–429	Heart diseases	475	39·2	2,647	17·9
430–438	Cerebrovascular diseases	118	9·7	848	13·9
460–519	Diseases of respiratory system	72	5·9	630	11·4
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	23	1·9	326	7·1
	Other	45	3·7	360	12·5
	Other causes	171	14·1	....	....
	65–74 years	**1,803**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	368	20·4	1,230	29·9
250	Diabetes	47	2·6	137	34·3
393–398, 402, 404, 410–429	Heart diseases	767	42·5	2,647	29·0
430–438	Cerebrovascular diseases	202	11·2	848	23·8
460–519	Diseases of respiratory system	160	8·9	630	25·4
800–999	Accidents, poisonings, violence—				
810–823	Motor vehicle accidents	25	1·4	326	7·7
	Other	25	1·4	360	6·9
	Other causes	209	11·6	....	....

PRINCIPAL CAUSES OF DEATH—AGE GROUPS, 1968 (*a*)—*continued*

International number	Age group and cause of death (*b*)	Deaths from specified cause			
		In age group		At all ages	
		Number	Per cent	Number	Per cent (*c*)
	75 years and over	**2,744**	**100·0**	....	....
140–209	Malignant neoplasms (*d*)	311	11·3	1,230	25·3
393–398, 402, 404, 410–429	Heart diseases	1,164	42·4	2,647	44·0
430–438	Cerebrovascular diseases	478	17·4	848	56·4
440–448	Diseases of arteries, arterioles and capillaries	132	4·8	205	64·4
460–519	Diseases of respiratory system	279	10·2	630	44·3
800–999	Accidents, poisonings, violence—				
880–887	Accidental falls	43	1·6	66	65·2
	Other	40	1·5	620	6·5
	Other causes	297	10·8	....	....

n.e.c. denotes ' not elsewhere classified '.

(*a*) See *NOTE* on page 142. (*b*) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968. (*c*) Deaths in the specified age group as a percentage of total deaths for a particular cause. (*d*) Including neoplasms of lymphatic and haematopoietic tissue.

Infant Deaths. The term ' infant death ' refers to a death which occurs before the completion of the first year of life. In the following table, infant deaths registered in Western Australia during each of the five years to 1968 are classified according to age at death.

INFANT MORTALITY (*a*)—AGES AT DEATH

Year	Days					Total under 28 days	Months			Total under 1 year
	Under 1	1–6	7–13	14–20	21–27		Under 3	3–5	6–11	
MALES										
1964	65	47	4	4	4	124	147	15	18	180
1965	61	50	12	7	6	136	156	19	22	197
1966	62	58	8	3	5	136	148	20	16	184
1967	83	54	6	7	5	155	172	5	12	189
1968	110	51	8	....	4	173	199	12	25	236
FEMALES										
1964	55	32	3	1	2	93	110	22	16	148
1965	60	39	3	7	1	110	116	14	24	154
1966	53	35	11	5	3	107	120	14	11	145
1967	48	23	8	2	....	81	92	17	16	125
1968	67	35	5	5	5	117	130	19	13	162
PERSONS										
1964	120	79	7	5	6	217	257	37	34	328
1965	121	89	15	14	7	246	272	33	46	351
1966	115	93	19	8	8	243	268	34	27	329
1967	131	77	14	9	5	236	264	22	28	314
1968	177	86	13	5	9	290	329	31	38	398

(*a*) See *NOTE* on page 142.

Infant Mortality Rates. The infant mortality rate expresses the relationship between deaths of infants and the live births occurring in a period, and is stated in terms of number of deaths under one year of age per thousand live births.

The rates for Western Australia and for the Commonwealth in the period 1916 to 1968 are shown in the following table.

INFANT MORTALITY RATES (*a*)
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate		Year	Annual rate	
	Western Australia (*b*)	Australia		Western Australia (*b*)	Australia
1916–20	61·7	64·67	1959	20·2	21·54
1921–25	59·1	57·88	1960	21·6	20·16
1926–30	49·3	51·99	1961	19·7	19·54
1931–35	40·8	41·27	1962	22·3	20·41
1936–40	39·7	38·81	1963	20·4	19·55
1941–45	33·3	34·97	1964	19·7	19·06
1946–50	28·1	26·98	1965	21·7	18·47
1951–55	24·4	23·34	1966	19·3	18·17
1956–60	21·4	21·05			
1961–65	20·7	19·42	1967	17·4	18·26
			1968	20·4	17·77

(*a*) See *NOTE* on page 142. (*b*) Rates for individual States are based on too few deaths to warrant calculation to the second place of decimals.

In the first decade of the century, the average annual rate (106·1) in Western Australia was considerably above the Commonwealth average of 86·83, and was the highest among the Australian States. Since then both the Western Australian and the Australian rates have shown a remarkable decrease. Despite the improvement in Western Australia, the experience of recent years generally reveals a less favourable situation than for the Commonwealth as a whole. In the five years ended 1968, Western Australia's average annual rate was 19·7 compared with the Australian rate of 18·3 and was greater than that for any other State.

Causes of Infant Deaths. The causes of infant deaths registered during the year 1968 are set out in the following table.

INFANT MORTALITY—CAUSES OF DEATH, 1968 (*a*)

International number	Cause of death (*b*)	Males	Females	Persons
	Causes mainly of prenatal and natal origin—			
740–759	Congenital anomalies	34	34	68
760–769	Attributed to conditions of the mother—			
762	Toxaemia of pregnancy	6	6	12
764–768	Difficult labour	14	7	21
769	Other complications of pregnancy and childbirth	45	14	59
	Other	8	6	14
770	Conditions of placenta	19	12	31
771	Conditions of umbilical cord	3	2	5
774, 775	Haemolytic disease of newborn	2	2	4
776	Anoxic and hypoxic conditions, n.e.c.	19	15	34
777	Immaturity, unqualified	17	12	29
	Other	6	7	13
	Total	173	117	290
	Causes mainly of postnatal origin—			
000–009	Intestinal infectious diseases	12	13	25
038	Septicaemia	5	3	8
320, 036	Meningitis and meningococcal infection	5	2	7
480–486	Pneumonia	23	14	37
911	Inhalation or ingestion of food causing obstruction or suffocation	4	1	5
	Other	14	12	26
	Total	63	45	108
	All causes	236	162	398

n.e.c. denotes 'not elsewhere classified'.

(*a*) See *NOTE* on page 142. (*b*) Classified in accordance with the *International Statistical Classification of Diseases, Injuries, and Causes of Death* (Eighth Revision), operative from 1 January 1968.

Stillbirths. The infant mortality rate discussed above is that most commonly used, and takes no account of stillbirths. It is informative, however, to examine these two factors in relation, as in the next table.

STILLBIRTHS (*a*) AND INFANT DEATHS (*b*)

Year	Stillbirths				Deaths under one year of age			
	Males	Females	Persons	Masculinity (*c*)	Males	Females	Persons	Masculinity (*c*)
1964	92	78	170	117·9	180	148	328	121·6
1965	110	71	181	154·9	197	154	351	127·9
1966	96	72	168	133·3	184	145	329	126·9
1967	92	96	188	95·8	189	125	314	151·2
1968	(*a*) 115	(*a*) 128	(*a*) 243	89·8	236	162	398	145·7

(*a*) Figures for 1968 refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks. (*b*) See *NOTE* on page 142. (*c*) Number of males to each 100 females.

The relationship between stillbirths and infant deaths during the same period is further examined in the following table, which shows the numbers of stillbirths and of infant deaths at various ages. The rates shown represent the number of stillbirths, or of infant deaths, per thousand of total births (*i.e.* including stillbirths).

STILLBIRTHS (*a*) AND INFANT DEATHS (*b*)
NUMBERS AND RATES

Year	Stillbirths	Infant deaths			Stillbirths and infant deaths
		Under 7 days	Under 28 days	Under one year	
NUMBER					
1964	170	199	217	328	498
1965	181	210	*246	351	532
1966	168	208	243	329	497
1967	188	208	236	314	502
1968	(*a*) 243	263	290	398	(*a*) 641
RATE (*c*)					
1964	10·1	11·8	12·9	19·5	29·5
1965	11·1	12·8	15·0	21·4	32·5
1966	9·8	12·1	14·1	19·2	28·9
1967	10·3	11·4	13·0	17·2	27·6
1968	12·3	13·3	14·7	20·1	33·4

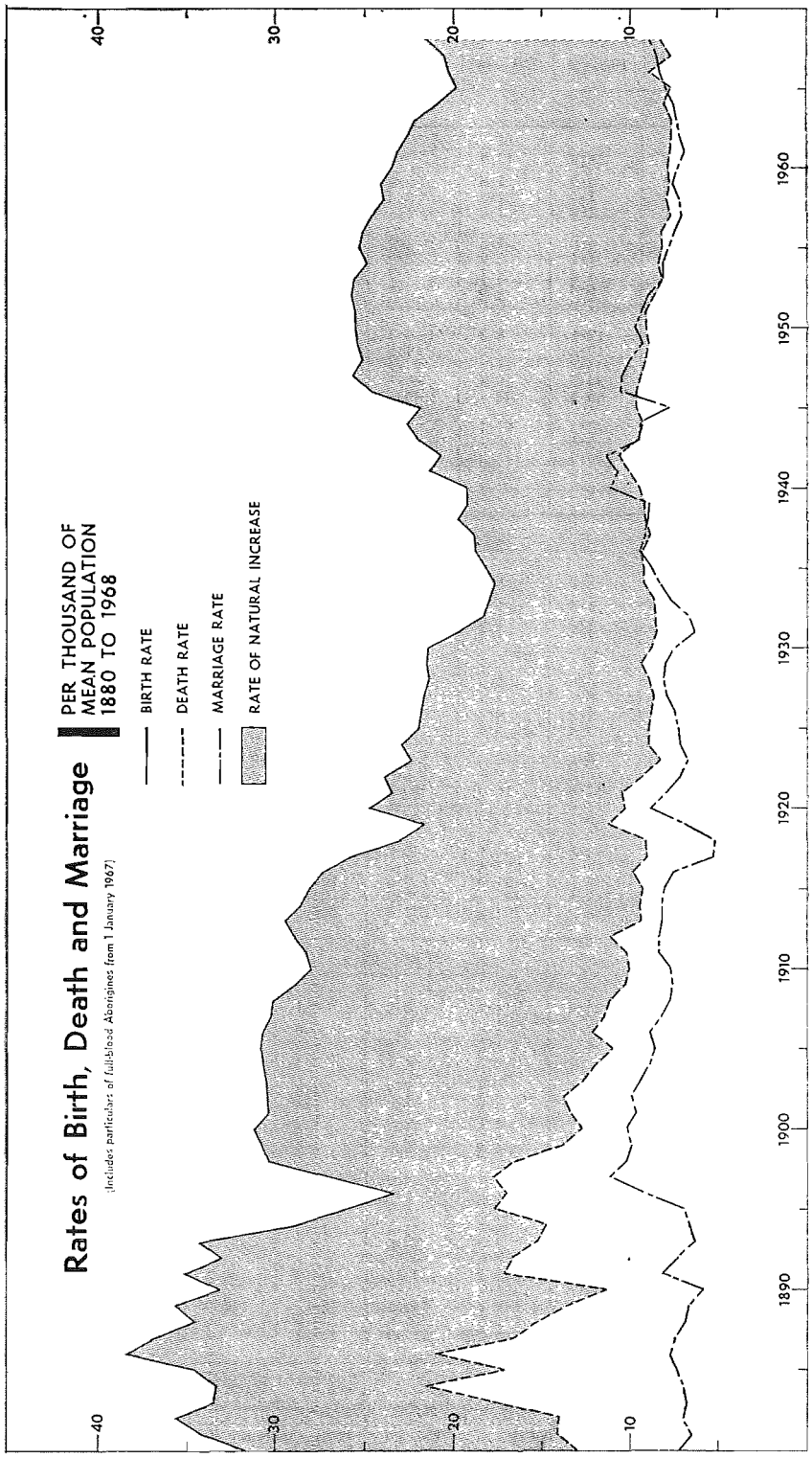
(*a*) Figures for 1968 refer to stillbirths where the child was of at least 20 weeks' gestation; those for 1967 and earlier refer to cases where the gestation period was at least 28 weeks. (*b*) See *NOTE* on page 142. (*c*) Rate per 1,000 of total births (*i.e.* including stillbirths). * Revised.

Age-specific Death Rates. The age-specific death rate expresses the number of deaths at specified ages in terms of the population at those particular ages. In the following table, which shows age-specific death rates for Western Australia, the average annual rates for 1960-62 and earlier periods relate to deaths in the three years surrounding a Population Census. Figures for 1966 are based on the results of the Census of 30 June 1966, and those for 1967 and 1968 on estimates of the age distribution of the population at 30 June of each year.

AGE-SPECIFIC DEATH RATES (*a*)

Age group (years)	1910–12	1920–22	1932–34	1946–48	1953–55	1960–62	1966	1967 (*b*)	1968 (*b*)
MALES									
Under 1	28·4	23·9	12·8	9·3	7·0	(*c*)22·9	(*c*) 20·9	(*c*) 20·3	(*c*) 23·4
1–4						1·2	1·1	1·3	1·2
5–9	2·6	2·2	1·6	0·9	0·7	0·5	0·4	0·6	0·7
10–14	2·2	1·4	1·4	0·6	0·5	0·4	0·5	0·5	0·5
15–19	2·9	2·4	1·8	1·5	1·6	1·2	1·3	1·2	1·5
20–24	5·2	4·0	2·5	2·2	2·0	1·7	1·8	1·4	2·1
25–29	5·9	4·1	2·9	2·0	1·9	1·5	1·4	1·5	1·9
30–34	6·8	5·4	3·1	2·3	1·8	1·6	1·5	2·0	2·3
35–39	8·4	6·4	4·0	2·5	2·2	2·1	2·5	2·1	2·1
40–44	10·4	7·9	5·7	4·2	3·2	3·5	3·3	3·3	3·2
45–49	15·0	12·1	8·8	6·3	5·8	5·0	4·7	5·9	5·2
50–54	17·7	17·2	13·5	11·5	9·0	9·5	9·1	8·8	9·7
55–59	24·7	23·8	21·4	17·2	15·8	14·8	15·7	16·5	16·6
60–64	35·1	34·2	28·3	26·3	24·8	23·8	26·2	25·2	26·4
65–69	46·0	49·5	42·4	40·3	41·5	40·3	42·8	41·1	43·1
70–74	78·7	72·2	63·4	61·0	62·9	59·6	64·2	60·4	67·6
75–79	110·5	115·6	105·1	98·7	93·8	96·7	95·0	100·4	99·2
80–84	185·2	184·5	176·8	149·5	146·9	140·9	153·2	147·0	154·4
85–89	328·2	283·5	265·0	222·4	225·7	244·5	282·8	229·8	286·0
90 and over	321·4	566·7	380·8	376·2	297·4				
FEMALES									
Under 1	21·8	18·8	8·6	7·9	5·1	(*c*)19·4	(*c*) 17·7	(*c*) 14·4	(*c*) 17·1
1– 4						1·2	0·9	0·8	1·1
5– 9	2·6	1·3	1·3	0·5	0·5	0·3	0·3	0·4	0·3
10–14	1·8	1·2	1·0	0·6	0·3	0·2	0·2	0·2	0·2
15–19	2·0	1·3	1·3	0·7	0·7	0·5	0·4	0·5	0·6
20–24	3·8	3·1	1·9	1·2	0·7	0·5	1·0	0·4	0·6
25–29	4·4	4·0	2·8	1·5	0·8	0·6	0·7	0·6	0·4
30–34	4·9	4·6	3·1	1·6	1·0	0·8	0·9	0·5	1·2
35–39	6·2	4·9	4·2	2·6	1·5	1·4	1·4	1·5	1·1
40–44	6·7	6·4	5·8	3·1	2·1	2·0	1·9	2·5	2·1
45–49	8·4	8·1	6·4	5·1	3·6	3·3	3·3	2·8	3·6
50–54	11·8	10·6	9·1	6·8	5·9	5·0	5·1	6·5	4·5
55–59	14·2	12·8	10·7	10·1	8·6	7·2	8·9	7·8	8·5
60–64	20·4	17·8	17·3	16·1	13·9	11·4	12·7	12·8	12·7
65–69	34·6	30·5	29·8	24·6	20·7	19·4	20·5	18·8	21·6
70–74	54·5	54·2	44·1	40·8	39·2	35·4	36·4	35·6	38·1
75–79	92·5	96·4	74·4	74·2	67·7	60·6	59·5	59·4	64·0
80–84	144·1	137·1	121·0	117·6	109·7	101·9	109·4	97·8	100·7
85–89	186·7	219·5	192·4	187·5	189·9	191·5	179·0	181·5	218·5
90 and over	359·0	478·3	397·2	273·8	285·9				
PERSONS									
Under 1	25·2	21·4	11·4	8·6	6·1	(*c*)21·2	(*c*) 19·3	(*c*) 17·4	(*c*) 20·4
1– 4						1·2	1·0	1·1	1·1
5– 9	2·6	1·8	1·4	0·7	0·6	0·4	0·4	0·5	0·5
10–14	2·0	1·3	1·2	0·6	0·4	0·3	0·3	0·3	0·4
15–19	2·5	1·9	1·5	1·1	1·2	0·8	0·8	0·8	1·0
20–24	4·6	3·5	2·2	1·7	1·4	1·2	1·4	1·0	1·4
25–29	5·3	4·0	2·8	1·7	1·4	1·1	1·1	1·1	1·2
30–34	6·0	5·0	3·1	1·9	1·4	1·2	1·2	1·3	1·8
35–39	7·5	5·7	4·1	2·5	1·8	1·8	2·0	1·8	1·6
40–44	9·1	7·2	5·2	3·7	2·7	2·8	2·6	2·9	2·7
45–49	12·7	10·4	7·7	5·7	4·8	4·2	4·0	4·4	4·4
50–54	15·6	14·6	11·5	9·2	7·6	7·4	7·1	7·7	7·1
55–59	20·9	19·6	16·6	13·8	12·3	11·4	12·5	12·3	12·7
60–64	29·3	27·9	23·4	21·4	19·3	17·8	19·8	19·3	19·9
65–69	41·2	41·7	37·0	32·6	30·9	29·1	31·3	29·8	32·4
70–74	68·7	64·3	55·3	50·8	50·4	46·5	48·5	46·5	51·4
75–79	103·3	106·7	91·1	86·6	79·8	76·3	74·4	76·5	78·6
80–84	170·1	162·6	149·7	133·2	125·9	118·0	126·2	116·7	121·0
85–89	266·7	252·0	222·9	204·1	205·8	210·7	213·1	196·7	239·4
90 and over	333·3	528·3	389·2	312·3	290·4				

(*a*) Rates for the three-year periods 1960-62 and earlier represent the average annual number of deaths per 1,000 of population in each age group at the relevant Census; for Census dates see table on page 125. Figures for 1966 are based on the results of the Census of 30 June 1966, and those for 1967 and 1968 on estimates of the age distribution of the population at 30 June of each year. Rates for 1966 and earlier exclude full-blood Aborigines; those for 1967 and 1968 refer to total population (*i.e.* including Aborigines) and are subject to revision after the 1971 Census. (*b*) Based on total population (*i.e.* including Aborigines); see note (*a*). See also *NOTE* on page 142. (*c*) Infant deaths per 1,000 live births registered.


Rates of Birth, Death and Marriage
(Includes particulars of full-blood Aborigines from 1 January 1967)
PER THOUSAND OF MEAN POPULATION 1880 TO 1968
BIRTH RATE
DEATH RATE
MARRIAGE RATE
RATE OF NATURAL INCREASE
40
30
20
10
1890
1900
1910
1920
1930
1940
1950
1960

Australian Life Tables. It has been the practice at each census from 1911 onwards to prepare Life Tables representative of the mortality experience of Australia. The mortality of the Australian population for the thirty years from 1881 to 1910 inclusive was investigated in 1911 by the Commonwealth Statistician. Tables were compiled for each State and for Australia as a whole in respect of each sex for each of the decennial periods 1881 to 1890, 1891 to 1900, and 1901 to 1910. At the Census of 1921, Life Tables were prepared by the Commonwealth Statistician from the recorded census population and the deaths in the three years 1920 to 1922. Tables based on data derived from later censuses have been compiled by the Commonwealth Actuary.

The expectation of life of males and females at various ages as revealed by these investigations is shown in the following table.

EXPECTATION OF LIFE (*a*)—AUSTRALIA: 1881-90 TO 1960-62
(Years)

Age last birthday (years)	1881–90	1891–1900	1901–10	1920–22	1932–34	1946–48	1953–55	1960–62
MALES								
0	47·20	51·08	55·20	59·15	63·48	66·07	67·14	67·92
5	52·86	55·61	57·91	60·43	62·57	63·77	64·32	64·77
10	48·86	51·43	53·53	56·01	58·02	59·04	59·53	59·93
15	44·45	46·98	49·03	51·44	53·36	54·28	54·72	55·07
20	40·58	42·81	44·74	46·99	48·81	49·64	50·10	50·40
25	37·10	38·90	40·60	42·70	44·37	45·04	45·54	45·80
30	33·64	35·11	36·52	38·44	39·90	40·40	40·90	41·12
35	30·06	31·34	32·49	34·20	35·46	35·79	36·25	36·45
40	26·50	27·65	28·56	30·05	31·11	31·23	31·65	31·84
45	23·04	23·99	24·78	26·03	26·87	26·83	27·18	27·38
50	19·74	20·45	21·16	22·20	22·83	22·67	22·92	23·13
55	16·65	17·08	17·67	18·51	19·03	18·84	19·00	19·18
60	13·77	13·99	14·35	15·08	15·57	15·36	15·47	15·60
65	11·06	11·25	11·31	12·01	12·40	12·25	12·33	12·47
70	8·82	8·90	8·67	9·26	9·60	9·55	9·59	9·77
75	6·72	6·70	6·58	6·87	7·19	7·23	7·33	7·47
80	5·11	5·00	4·96	5·00	5·22	5·36	5·47	5·57
85	3·86	3·79	3·65	3·62	3·90	3·84	4·01	4·08
90	2·91	2·91	2·64	2·60	2·99	2·74	2·93	3·02
95	2·16	2·16	1·88	1·86	2·11	1·93	2·10	2·29
100	1·32	1·29	1·18	1·17	1·10	....	....	....
FEMALES								
0	50·84	54·76	58·84	63·31	67·14	70·63	72·75	74·18
5	56·00	58·64	60·80	63·64	65·64	67·91	69·61	70·78
10	51·95	54·46	56·39	59·20	61·02	63·11	64·78	65·92
15	47·54	49·97	51·86	54·55	56·29	58·27	59·90	61·01
20	43·43	45·72	47·52	50·03	51·67	53·47	55·06	56·16
25	39·67	41·69	43·36	45·71	47·19	48·74	50·24	51·32
30	36·13	37·86	39·33	41·48	42·77	44·08	45·43	46·49
35	32·58	34·14	35·37	37·28	38·37	39·46	40·67	41·70
40	29·08	30·49	31·47	33·14	34·04	34·91	36·00	36·99
45	25·56	26·69	27·59	28·99	29·74	30·45	31·44	32·38
50	22·06	22·93	23·69	24·90	25·58	26·14	27·03	27·92
55	18·64	19·29	19·85	20·95	21·58	22·04	22·81	23·63
60	15·39	15·86	16·20	17·17	17·74	18·11	18·78	19·51
65	12·27	12·75	12·88	13·60	14·15	14·44	15·02	15·68
70	9·70	9·89	9·96	10·41	10·98	11·14	11·62	12·19
75	7·24	7·37	7·59	7·73	8·23	8·32	8·69	9·16
80	5·27	5·49	5·73	5·61	6·01	6·02	6·30	6·68
85	3·90	4·12	4·19	4·06	4·30	4·32	4·52	4·79
90	2·98	3·07	2·99	2·91	3·05	3·08	3·24	3·48
95	2·25	2·18	2·10	2·07	2·00	2·14	2·31	2·59
100	1·37	1·23	1·24	1·24	1·02	....	....	....

(*a*) Refers to population exclusive of full-blood Aborigines; see letterpress *Aborigines* on page 125.

MARRIAGES

The number of marriages registered in Western Australia in each of the five years 1964 to 1968 is shown in the following table. Marriages celebrated by ministers of religion are distinguished from those celebrated by civil officers, and the numbers of minors marrying are also shown.

MARRIAGES REGISTERED (*a*)

Year	Marriages celebrated by—		All marriages	Proportion celebrated by civil officers (per cent)	Marriages of minors				
	Ministers of religion	Civil officers			Males	Per cent of all bride-grooms	Females	Per cent of brides	Total minors married
PERTH STATISTICAL DIVISION									
1964	(*b*)	(*b*)	4,050	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)
1965	3,805	660	4,465	14·8	677	15·16	1,934	43·31	2,611
1966	4,190	689	4,879	14·1	751	15·39	2,192	44·93	2,943
1967	4,395	823	5,218	15·8	863	16·54	2,442	46·80	3,305
1968	4,650	940	5,590	16·8	927	16·58	2,568	45·94	3,495
OTHER DIVISIONS									
1964	(*b*)	(*b*)	1,973	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)	(*b*)
1965	1,701	282	1,983	14·2	287	14·47	973	49·07	1,260
1966	1,805	317	2,122	14·9	306	14·42	1,056	49·76	1,362
1967	1,894	318	2,212	14·4	357	16·14	1,116	50·45	1,473
1968	2,160	336	2,496	13·5	425	17·03	1,273	51·00	1,698
WESTERN AUSTRALIA									
1964	5,151	872	6,023	14·5	725	12·04	2,609	43·32	3,334
1965	5,506	942	6,448	14·6	964	14·95	2,907	45·08	3,871
1966	5,995	1,006	7,001	14·4	1,057	15·10	3,248	46·39	4,305
1967	6,289	1,141	7,430	15·4	1,220	16·42	3,558	47·89	4,778
1968	6,810	1,276	8,086	15·8	1,352	16·72	3,841	47·50	5,193

(*a*) See *NOTE* on page 142. (*b*) Particulars not available.

The statistics of minors marrying during the five-year period as shown above reveal that 46·2 per cent of brides were minors, compared with only 15·2 per cent of bridegrooms.

Age at Marriage. The relative ages of bridegrooms and brides who married in Western Australia in 1968 are shown in the following table.

RELATIVE AGES OF BRIDEGROOMS AND BRIDES, 1968 (*a*)

Age of bridegroom (years)	Total bride-grooms	Age of bride (years)							
		Under 15	15–19	20–24	25–29	30–34	35–39	40–44	45 and over
Under 20	655	....	561	92	2	....	....	....	....
20–24	4,396	....	1,785	2,480	112	18	....	1	....
25–29	1,676	1	267	1,051	285	55	10	6	1
30–34	508	....	40	216	151	69	23	6	3
35–39	251	....	9	57	54	56	44	18	13
40–44	196	....	1	20	30	28	43	46	28
45–49	123	....	1	6	13	15	26	14	48
50–54	85	....	1	....	3	2	17	15	47
55–59	77	....	....	....	1	....	2	9	65
60–64	46	....	....	....	....	1	2	2	41
65 and over	73	....	....	....	....	....	....	8	65
Total brides	8,086	1	2,665	3,922	651	244	167	125	311

(*a*) See *NOTE* on page 142.

Of the women who married in 1968, 33·0 per cent were aged less than twenty years. The corresponding figure for men was 8·10 per cent.

The following table gives details of the average age and the conjugal condition of bridegrooms and brides in each of the five years to 1968. In each year of the period the difference in the average age of bridegrooms and brides was about three years, the difference in 1968 being 2·96 years.

AVERAGE AGES OF BRIDEGROOMS AND BRIDES (*a*)

Year	Average age of bridegrooms (years)				Average age of brides (years)			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
1964	24·79	56·12	42·65	27·00	21·54	50·43	37·71	23·63
1965	24·46	54·65	42·31	26·41	21·32	49·54	38·10	23·26
1966	24·91	54·95	41·97	26·83	21·81	48·78	38·24	23·76
1967	24·78	56·46	40·92	26·84	21·79	48·91	38·04	23·74
1968	24·57	55·12	41·04	26·37	21·57	48·16	37·27	23·41

(*a*) See *NOTE* on page 142.

The following table shows the age and conjugal condition at time of marriage of bridegrooms and brides who married in Western Australia during 1968.

AGE AND CONJUGAL CONDITION OF BRIDEGROOMS AND BRIDES, 1968 (*a*)

Age at marriage (years)	Bridegrooms				Brides			
	Bachelors	Widowers	Divorced	Total	Spinsters	Widows	Divorced	Total
Under 20	655	....	....	655	2,664	1	1	2,666
20–24	4,382	2	12	4,396	3,865	8	49	3,922
25–29	1,600	10	66	1,676	540	19	92	651
30–34	413	4	91	508	134	25	85	244
35–39	154	11	86	251	52	17	98	167
40–44	85	24	87	196	26	27	72	125
45–49	40	25	58	123	18	46	46	110
50–54	25	21	39	85	10	38	26	74
55–59	8	31	38	77	9	32	14	55
60–64	7	24	15	46	5	23	14	42
65 and over	8	54	11	73	....	27	3	30
Total	7,377	206	503	8,086	7,323	263	500	8,086

(*a*) See *NOTE* on page 142.

The numbers and ages of minors who married in Western Australia during each of the five years 1964 to 1968 are given in the following table.

MARRIAGES OF MINORS (*a*)

Year	Bridegrooms							Brides						
	Age last birthday (years)							Age last birthday (years)						
	Under 16	16	17	18	19	20	Under 21	Under 16	16	17	18	19	20	Under 21
1964	....	1	17	92	242	373	725	8	176	352	505	743	825	2,609
1965	....	....	9	182	292	481	964	11	168	392	714	764	858	2,907
1966	....	....	12	170	407	468	1,057	9	155	407	708	1,037	932	3,248
1967	....	1	14	211	384	610	1,220	14	193	405	743	1,062	1,141	3,558
1968	....	....	20	213	422	697	1,352	16	211	481	857	1,101	1,175	3,841

(*a*) See *NOTE* on page 142.

Religious and Civil Marriages. The *Marriage Act* 1961-1966 (Commonwealth) provides that marriages may be celebrated either by ministers of religion registered for the purpose with the Registrar of Ministers of Religion in each State or Territory or by certain civil officers, usually District Registrars.

The following table, which relates to marriages registered in Western Australia during the period 1964 to 1968, shows the numbers and proportions celebrated by ministers of the principal religious denominations and by civil officers.

RELIGIOUS AND CIVIL MARRIAGES (*a*)

Category of celebrant	1964	1965	1966	1967	1968	
					Number	Per cent of total
Ministers of religion—						
Recognised denominations (*b*)—						
Church of England in Australia	1,900	2,012	2,235	2,388	2,560	31·7
Roman Catholic Church	1,536	1,700	1,851	1,928	2,122	26·2
The Methodist Church of Australasia	688	723	817	806	892	11·0
The Presbyterian Church of Australia	354	381	392	405	410	5·1
Churches of Christ in Australia	126	124	132	176	190	2·3
Congregational Union of Australia	122	103	105	127	128	1·6
The Baptist Union of Australia	90	97	101	104	105	1·3
Orthodox Church (*c*)	79	67	63	70	71	0·9
The New Church in Australia	81	93	85	58	68	0·8
The Salvation Army	28	38	43	50	46	0·6
Seventh-day Adventist Church	28	43	32	36	42	0·5
Lutheran Church (*c*)	24	33	35	26	53	0·7
Church of Jesus Christ of Latter Day Saints	9	7	14	20	15	0·2
Jehovah's Witnesses	17	16	19	16	24	0·3
Jewry	10	14	15	11	7	0·1
Other recognised denominations	48	44	40	43	48	0·6
Other ministers	11	11	16	25	29	0·4
Total, Ministers of religion	5,151	5,506	5,995	6,289	6,810	84·2
Civil officers	872	942	1,006	1,141	1,276	15·8
Total marriages	6,023	6,448	7,001	7,430	8,086	100·0
Proportion of total (per cent)—						
Ministers of religion	85·5	85·4	85·6	84·6	....	84·2
Civil officers	14·5	14·6	14·4	15·4	....	15·8

(*a*) See *NOTE* on page 142. (*b*) Under authority of the *Marriage Act* 1961–1966 (Commonwealth). (*c*) Includes churches grouped under this heading in the proclamation made under the Marriage Act.

Marriage Rates. The average annual marriage rates per thousand of mean population for Western Australia and for the Commonwealth in each five-year period from 1916 to 1965, as well as the rates for each of the years from 1959 to 1968, are shown in the following table.

MARRIAGE RATES (*a*)
WESTERN AUSTRALIA AND AUSTRALIA

Period	Average annual rate (*b*)		Year	Annual rate (*b*)	
	Western Australia	Australia		Western Australia	Australia
1916–20	6·80	7·82	1959	7·57	7·40
1921–25	7·27	8·04	1960	7·36	7·34
1926–30	7·80	7·52	1961	6·98	7·30
1931–35	7·58	7·16	1962	7·23	7·39
1936–40	9·49	9·35	1963	7·40	7·42
1941–45	9·74	9·94	1964	7·55	7·73
1946–50	10·01	9·77	1965	7·91	8·25
1951–55	8·44	8·29	1966	8·36	8·31
1956–60	7·36	7·50			
1961–65	7·43	7·63	1967	8·47	8·46
			1968	8·88	8·83

(*a*) See *NOTE* on page 142. (*b*) Rates for the years 1961 to 1965 have been revised in accordance with the final results of the 1966 Census; those for 1966 and later are subject to revision after the 1971 Census.

DIVORCE

The *Matrimonial Causes Act* 1959-1966 (Commonwealth), which came into operation on 1 February 1961, establishes uniform grounds throughout Australia for the termination of marriage. Previously, each State was primarily responsible for the provision of matrimonial relief but the law varied from State to State. While the Commonwealth Act supersedes the divorce laws of the States, jurisdiction continues to be vested in the Courts of the States.

Under the uniform law, grounds for dissolution of marriage (*i.e.* divorce) include desertion for not less than two years, adultery, separation for not less than five years, cruelty, drunkenness, and failure to comply with maintenance orders. The main grounds for nullity of marriage are bigamy and incapacity to consummate the marriage.

Decrees may be granted by a Court for dissolution of marriage, judicial separation, nullity of marriage, and restitution of conjugal rights. Orders may also be made for the custody and welfare of children, maintenance, the settlement of property, and damages for adultery.

A decree for dissolution of marriage is in the first instance a decree *nisi*. The decree automatically becomes absolute at the expiration of three months, unless it is in the meantime rescinded; appeal proceedings are instituted; or there are children of the marriage under the age of sixteen years, in which case the court must be satisfied that appropriate arrangements have been made for their welfare before the decree will become absolute. The parties cannot remarry until a decree *nisi* has become absolute. A decree of judicial separation is available on most of the grounds available for divorce.

PETITIONS FILED

Year	Petitions for—				Total petitions	Petitioner	
	Dissolution of marriage	Nullity of marriage	Judicial separation	Restitution of conjugal rights		Husband	Wife
1964	653	2	1	9	665	321	344
1965	736	2	....	5	743	374	369
1966	787	3	1	7	798	384	414
1967	888	2	....	3	893	412	481
1968	995	5	3	3	1,006	489	517

The following table gives the number of decrees absolute granted and the grounds for the decrees in the period 1964 to 1968. In each year except 1967, adultery was the principal ground for divorce, and accounted for 37·0 per cent of all decrees granted during the five years.

DISSOLUTION OF MARRIAGE—DECREES ABSOLUTE GRANTED

Year	Ground (*a*)					Total decrees absolute	Petitioner		
	Adultery	Desertion	Separation for 5 years or longer	Maintenance (*b*)	Other		Husband	Wife	Both parties
1964	210	150	160	6	16	542	259	282	1
1965	213	194	168	6	23	604	275	329	....
1966	251	208	154	5	19	637	314	322	1
1967	249	258	189	2	28	726	345	381	....
1968	305	259	204	7	37	812	365	447	....

(*a*) Where a dissolution is granted on two or more grounds, only one ground is tabulated, preference being given in the order shown. (*b*) Non-compliance with maintenance order.

In the following table particulars are given of the duration of marriage, *i.e.* the interval between marriage and the date when the decree was made absolute, for marriages dissolved during the five years 1964 to 1968.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED

Year of dissolution of marriage	Marriages dissolved after a duration of—								Total marriages dissolved
	Under 5 years	5–9 years	10–14 years	15–19 years	20–24 years	25–29 years	30–34 years	35 years and over	
1964	29	128	131	97	76	44	18	19	542
1965	39	165	130	106	73	50	20	21	604
1966	53	141	155	123	69	44	29	23	637
1967	76	162	138	128	102	68	31	21	726
1968	71	219	167	133	108	61	34	19	812

The following table shows, for the year 1968, the number of marriages dissolved, classified according to duration of marriage and the number of children of the marriage.

DISSOLUTION OF MARRIAGE—DURATION OF MARRIAGES DISSOLVED AND NUMBER OF CHILDREN, 1968

Duration of marriage (years)	Marriages dissolved with—							Total marriages dissolved		Total number of children (*a*)
	No children	1 child	2 children	3 children	4 children	5 children	6 or more	Number	Per cent	
0– 4	45	17	6	3	....	....	....	71	8·7	38
5– 9	70	80	57	7	4	1	....	219	27·0	236
10–14	37	31	41	41	12	2	3	167	20·6	312
15–19	18	19	30	36	19	9	2	133	16·4	320
20–24	13	24	30	14	17	7	3	108	13·3	249
25–29	26	16	9	9	....	....	1	61	7·5	67
30–34	23	5	6	....	....	....	....	34	4·2	17
35 and over	18	1	....	....	....	....	....	19	2·3	1
Petitioner—										
Husband	129	83	81	42	18	10	2	365	45·0	505
Wife	121	110	98	68	34	9	7	447	55·0	735
Total	250	193	179	110	52	19	9	812	100·0	1,240

(*a*) At date of petition. The term *children* refers to *children of the marriage* as defined in the Matrimonial Causes Act, living and under 21 years of age.

The following table shows, for the year 1968, the ages of husband and wife at the date of decree absolute.

DISSOLUTION OF MARRIAGE—AGES OF PARTIES, 1968

Age group (*a*) of husband (years)	Age group (*a*) of wife (years)										Total husbands	
	Under 20	20–24	25–29	30–34	35–39	40–44	45–49	50–54	55–59	60 and over	Number	Per cent
Under 20	....	....	....	....	....	....	....	....	....	....	....	....
20–24	2	23	....	....	....	....	....	....	....	....	25	3·1
25–29	....	56	62	3	1	....	....	....	....	....	122	15·0
30–34	....	14	67	56	4	1	....	1	....	....	143	17·6
35–39	....	1	8	59	56	9	2	....	....	....	135	16·6
40–44	....	....	3	15	50	46	12	1	....	....	127	15·6
45–49	....	....	2	3	15	27	33	3	4	....	87	10·7
50–54	....	....	....	1	7	12	28	21	4	1	74	9·1
55–59	....	....	1	1	1	8	12	17	3	8	51	6·3
60 and over	....	....	....	....	....	1	6	11	12	18	48	5·9
Total wives—												
Number	2	94	143	138	134	104	93	54	23	27	812	....
Per cent	0·2	11·6	17·6	17·0	16·5	12·8	11·5	6·7	2·8	3·3	....	100·0

(*a*) Age at date of decree absolute.

CHAPTER V—SOCIAL CONDITIONS

Part 1—Education

PRIMARY, SECONDARY AND TECHNICAL EDUCATION

In Western Australia, education at primary and secondary levels is provided at government schools administered and staffed by the Education Department and at non-government schools, most of which are conducted by the principal religious denominations. The Technical Education Division of the Education Department provides technician-level courses, apprenticeship and part-apprenticeship training programmes, general studies (including courses for students preparing for public and other external examinations), and adult education (including classes designed as leisure-type studies).

Government Financial Assistance

The State Government each year awards to country students 100 scholarships, valued at $80 per annum, tenable for the first three years of secondary education at government or non-government schools and a further ten scholarships, valued at $160 per annum, tenable in the fourth and fifth years. Selected students intending to enter the teaching service are granted bursaries, also valued at $160 per annum and tenable in the fourth and fifth years. All these amounts are additional to the boarding allowances which are paid to students who are obliged to live away from home to attend secondary schools. As a contribution towards tuition fees at non-government schools assistance is made available on the basis of $30 annually for a student in the first three years of secondary education and $36 in each of the fourth and fifth years, except in the case of students in receipt of any scholarship, bursary or like award of a value exceeding $80 per annum. Further assistance is available to non-government schools on the basis of $20 per annum in respect of each pupil in primary grades.

All these forms of assistance are granted without the application of a means test.

The State Government provides financial aid to non-government schools by meeting part of the costs incurred in purchasing certain equipment, instruments and appliances, including such items as film projectors, radio equipment, library books and musical instruments. Assistance is also given by way of reimbursement of interest paid, up to a prescribed maximum rate, on moneys borrowed since 1 January 1965 for expenditure on new residential accommodation for scholars. In addition, subsidies are provided for the installation of swimming pools.

The Commonwealth Government makes an annual award of scholarships tenable by students in the fourth and fifth years of secondary education at government and non-government schools, as well as technical scholarships for certain courses at technical institutions. Benefits, which are not subject to a means test, comprise, for full-time students, a living allowance of $200 per annum, $50 per annum for text books and equipment, and up to $150 per annum for fees. For part-time technical students, allowances of $100 per annum, not subject to a means test, are granted and compulsory fees are reimbursed up to a maximum of $100 per annum. Aboriginal study grants are payable by the Commonwealth Government to assist persons of Aboriginal descent to undertake courses of post-secondary education. The grants provide a living allowance to full-time students of up to $1,100 per annum, a textbook allowance and payment of compulsory fees. Where appropriate, travel and dependants' allowances are also payable. Commonwealth Advanced Education Scholarships are awarded each year to students in approved non-university tertiary courses. They provide benefits comprising payment of compulsory fees and a living allowance which is subject to a means test.

The Commonwealth Government also provides assistance for secondary and technical education by means of specific-purpose grants for science laboratories, technical training and school libraries. Reference to these grants will be found in the section *Commonwealth Financial Assistance for Education* on pages 181–4.

School Attendance

Where a child lives within reasonable access of a government or approved non-government school, attendance is compulsory from the age of six years and upward to the end of the year in which the child attains the age of fifteen years, unless satisfactory instruction is provided elsewhere. The Minister for Education may, however, if he is satisfied that the best interests of the child would be served, exempt a child from further attendance at school if the child has attained the age of fourteen years, is assured of employment and it is necessary for the child to leave school in order to engage in that employment.

School Enrolments

The following tables give a classification according to age of pupils enrolled at government and non-government schools on 1 August in the years shown.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE

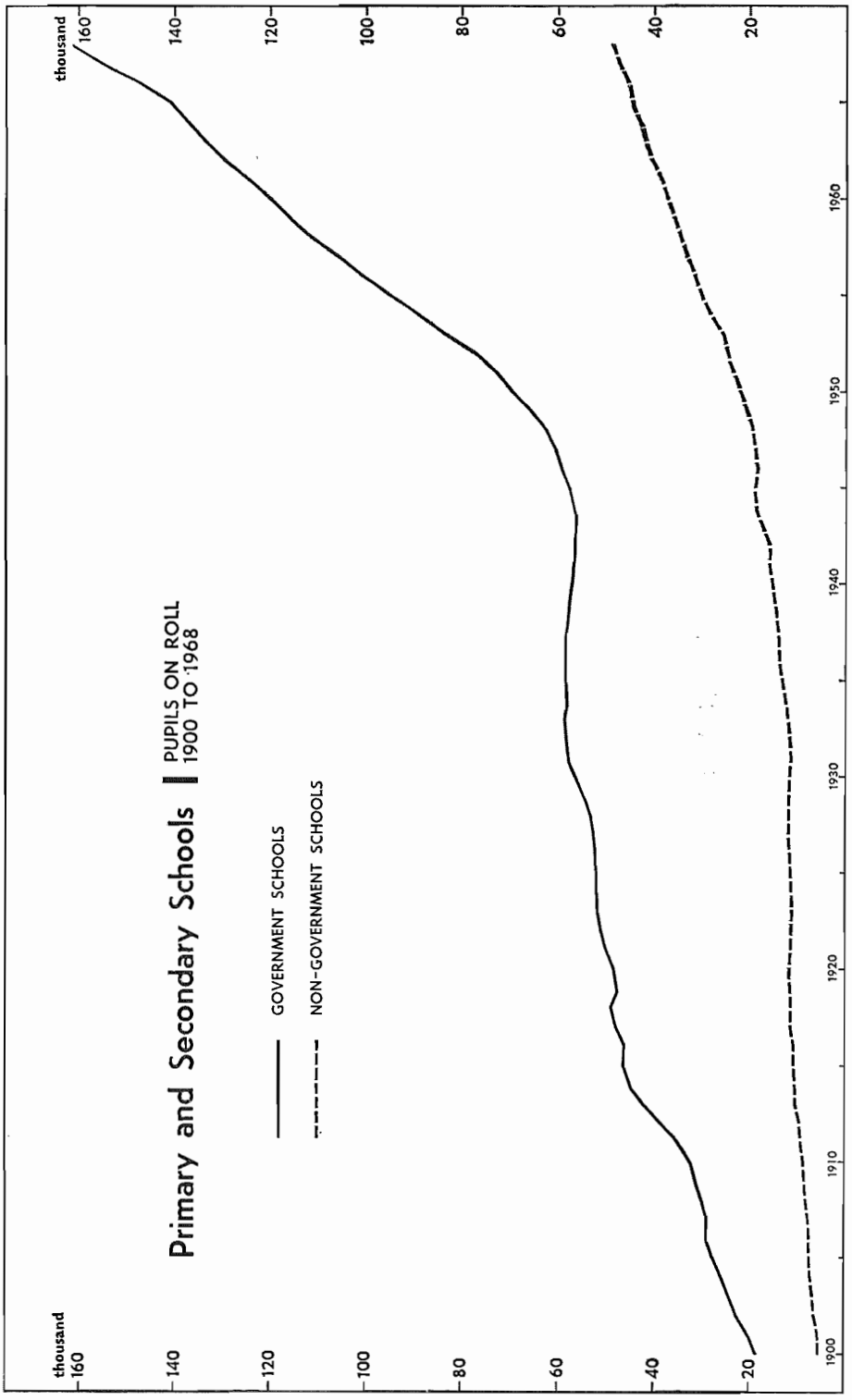
Age last birthday (*a*) (years)	Government schools (*b*)					Non-government schools (*c*)				
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
Under 6	5,551	5,800	5,870	6,196	6,409	7,617	8,223	8,891	9,379	9,750
6	14,042	14,117	14,865	15,517	16,042	3,237	3,487	3,356	3,594	3,477
7	13,856	14,208	14,740	15,494	16,355	3,426	3,294	3,364	3,471	3,539
8	14,197	14,114	14,799	15,401	16,241	3,350	3,311	3,193	3,309	3,442
9	14,106	14,506	14,685	15,363	15,975	3,118	3,271	3,242	3,269	3,270
10	13,616	14,374	15,038	15,163	15,967	3,071	3,210	3,231	3,265	3,276
11	13,809	13,737	14,487	15,464	15,574	3,103	3,113	3,297	3,368	3,321
12	13,196	13,418	13,728	14,619	15,436	3,293	3,446	3,469	3,718	3,747
13	12,708	13,034	13,401	13,459	14,513	3,614	3,816	3,888	3,936	4,116
14	10,890	11,593	12,359	13,321	13,322	3,394	3,464	3,528	3,829	3,961
15	6,851	7,062	7,625	9,145	9,300	2,602	2,715	2,924	3,106	3,249
16	2,898	3,064	3,281	3,569	3,942	1,645	1,743	1,891	1,985	2,112
17	1,383	1,400	1,490	1,695	1,751	903	938	1,005	1,067	1,114
18 and over	470	524	520	569	589	166	177	172	163	183
Total	137,573	140,951	146,888	154,975	161,416	42,539	44,208	45,451	47,459	48,557

(*a*) At 1 August. (*b*) Includes Special Schools and Classes; see letterpress on page 169. Excludes Technical Schools and Colleges; see first table on page 171. (*c*) Includes pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools; see letterpress on pages 172–3.

GOVERNMENT AND NON-GOVERNMENT SCHOOLS
PUPILS CLASSIFIED ACCORDING TO AGE AND SEX: AUGUST 1968

Age last birthday (*a*) (years)	Government schools (*b*)			Non-government schools (*c*)			All schools (*b*) (*c*)		
	Boys	Girls	Total	Boys	Girls	Total	Boys	Girls	Total
Under 6	3,402	3,007	6,409	4,951	4,799	9,750	8,353	7,806	16,159
6	8,312	7,730	16,042	1,700	1,777	3,477	10,012	9,507	19,519
7	8,508	7,847	16,355	1,717	1,822	3,539	10,225	9,669	19,894
8	8,457	7,784	16,241	1,638	1,804	3,442	10,095	9,588	19,683
9	8,308	7,667	15,975	1,547	1,723	3,270	9,855	9,390	19,245
10	8,316	7,651	15,967	1,523	1,753	3,276	9,839	9,404	19,243
11	8,204	7,370	15,574	1,541	1,780	3,321	9,745	9,150	18,895
12	8,195	7,241	15,436	1,744	2,003	3,747	9,939	9,244	19,183
13	7,599	6,914	14,513	1,845	2,271	4,116	9,444	9,185	18,629
14	6,969	6,353	13,322	1,852	2,109	3,961	8,821	8,462	17,283
15	4,985	4,315	9,300	1,515	1,734	3,249	6,500	6,049	12,549
16	2,300	1,642	3,942	1,076	1,036	2,112	3,376	2,678	6,054
17	1,043	708	1,751	590	524	1,114	1,633	1,232	2,865
18 and over	404	185	589	140	43	183	544	228	772
Total	85,002	76,414	161,416	23,379	25,178	48,557	108,381	101,592	209,973

For footnotes, see previous table.


Primary and Secondary Schools
PUPILS ON ROLL
1900 TO 1968
GOVERNMENT SCHOOLS
NON-GOVERNMENT SCHOOLS
thousand
160
140
120
100
80
60
40
20
1900
1910
1920
1930
1940
1950
1960

School censuses are conducted annually at or about the beginning of August in all States and the internal Territories of Australia. The Western Australian Correspondence School (see letterpress on page 169), special schools and classes (see letterpress on page 169), schools in institutional homes, hospitals and similar establishments, and kindergartens are included in the census. Institutions such as business colleges and coaching establishments are excluded.

In the following table pupils enrolled in primary grades at 1 August 1968 are classified according to grade and age. The figures exclude particulars of pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. Reference to kindergarten schools will be found on pages 172–3.

PRIMARY ENROLMENTS—GRADE AND AGE AT 1 AUGUST 1968

Age last birthday (years)	Grade							Ungraded pupils (a)	Total
	1	2	3	4	5	6	7		
GOVERNMENT SCHOOLS									
Under 6	6,381	3	....	....	....	....	....	2	6,386
6	10,448	5,520	2	....	....	....	....	10	15,980
7	760	10,229	5,228	12	....	....	....	38	16,267
8	69	995	9,818	5,149	14	....	....	106	16,151
9	13	91	1,053	9,526	4,965	13	....	219	15,880
10	6	22	115	1,026	9,336	5,109	6	267	15,887
11	4	10	28	148	1,038	9,235	4,759	273	15,495
12	2	7	18	47	133	1,128	9,303	213	10,851
13	....	3	5	17	29	125	989	48	1,216
14	....	1	8	12	9	19	69	2	120
15	....	....	4	2	6	6	14	1	33
16	....	....	....	....	....	1	1	....	2
17	....	....	1	....	....	....	1	....	2
18 and over	....	....	1	2	1	1	5	....	10
Total	17,683	16,881	16,281	15,941	15,531	15,637	15,147	1,179	114,280
NON-GOVERNMENT SCHOOLS (b)									
Under 6	1,448	....	....	....	....	....	....	....	1,448
6	2,330	1,125	1	....	....	....	....	....	3,456
7	122	2,313	1,094	5	....	....	....	....	3,534
8	14	236	2,161	1,018	12	....	....	....	3,441
9	6	28	282	2,017	933	4	....	....	3,270
10	....	5	45	273	1,992	955	6	....	3,276
11	....	1	4	52	319	1,972	958	....	3,306
12	....	1	1	12	58	324	2,128	....	2,524
13	....	....	1	1	24	65	329	....	420
14	....	1	....	1	10	13	49	....	74
15	....	....	....	....	....	1	6	....	7
16	....	....	....	....	....	....	1	....	1
17	....	....	....	....	....	....	....	....	....
18 and over	....	....	....	....	....	....	....	....	....
Total	3,920	3,710	3,589	3,379	3,348	3,334	3,477	....	24,757
ALL SCHOOLS (b)									
Under 6	7,829	3	....	....	....	....	....	2	7,834
6	12,778	6,645	3	....	....	....	....	10	19,436
7	882	12,542	6,322	17	....	....	....	38	19,801
8	83	1,231	11,979	6,167	26	....	....	106	19,592
9	19	119	1,335	11,543	5,898	17	....	219	19,150
10	6	27	160	1,299	11,328	6,064	12	267	19,163
11	4	11	32	200	1,357	11,207	5,717	273	18,801
12	2	8	19	59	191	1,452	11,431	213	13,375
13	....	3	6	18	53	190	1,318	48	1,636
14	....	2	8	13	19	32	118	2	194
15	....	....	4	2	6	7	20	1	40
16	....	....	....	....	....	1	2	....	3
17	....	....	1	....	....	....	1	....	2
18 and over	....	....	1	2	1	1	5	....	10
Total	21,603	20,591	19,870	19,320	18,879	18,971	18,624	1,179	139,037

(a) Special Schools and Classes; see letterpress on page 169. (b) Excludes 7,989 pupils attending kindergarten schools and 329 pupils in kindergarten grades at other non-government schools.

The following table gives a classification of school enrolments at secondary level at 1 August 1968 according to year of study and age of pupil.

SECONDARY ENROLMENTS—YEAR OF STUDY AND AGE AT 1 AUGUST 1968

Age last birthday (years)	Year of study					Ungraded pupils (a)	Total
	1	2	3	4	5		
GOVERNMENT SCHOOLS							
11	10	....	....	....	....	....	10
12	4,474	7	....	....	....	23	4,504
13	8,957	4,029	5	....	....	215	13,206
14	1,101	8,167	3,667	6	....	188	13,129
15	78	999	6,886	1,139	3	86	9,191
16	17	107	865	2,059	818	10	3,876
17	5	13	123	193	1,373	....	1,707
18 and over	176	33	188	2	168	....	567
Total	14,818	13,355	11,734	3,399	2,362	522	46,190
NON-GOVERNMENT SCHOOLS							
11	15	....	....	....	....	....	15
12	1,218	5	....	....	....	....	1,223
13	2,584	1,104	8	....	....	....	3,696
14	382	2,423	1,076	6	....	....	3,887
15	40	342	2,220	638	2	....	3,242
16	2	14	358	1,219	518	....	2,111
17	....	....	19	139	956	....	1,114
18 and over	....	....	12	22	149	....	183
Total	4,241	3,888	3,693	2,024	1,625	....	15,471
ALL SCHOOLS							
11	25	....	....	....	....	....	25
12	5,692	12	....	....	....	23	5,727
13	11,541	5,133	13	....	....	215	16,902
14	1,483	10,590	4,743	12	....	188	17,016
15	118	1,341	9,106	1,777	5	86	12,433
16	19	121	1,223	3,278	1,336	10	5,987
17	5	13	142	332	2,329	....	2,821
18 and over	176	33	200	24	317	....	750
Total	19,059	17,243	15,427	5,423	3,987	522	61,661

(a) Special Classes; see letterpress on page 169.

THE EDUCATION DEPARTMENT

The Education Department is responsible for the organisation and management of the State Government's education programme and is controlled by a Director-General of Education responsible to the Minister for Education. The administrative structure of the Department provides for five Divisions and a number of Special Branches. The Divisions, each of which is in the charge of a Director, are those of Primary Education, Secondary Education, Technical Education, Teacher Education, and Special Services. The work of the Special Branches is related to such activities as physical education (including swimming instruction), music, drama, art and crafts, visual education and publications. In addition there is provision for a number of other services which are concerned with particular aspects of the education and welfare of school children, such as the Nature Advisory Service, and the School Medical and Dental Services conducted in collaboration with the Department of Public Health.

Primary and Secondary Schools

Instruction in the primary school is given in seven grades. A child who makes normal progress completes the course at the age of twelve years and may then enter high school. A Senior High School provides tuition to standards required for the Junior Examination, usually taken at the age of fifteen years, and the Leaving Examination, which is the final examination in Western Australian secondary schools and is normally taken at the age of seventeen years. A High School gives instruction in the first three years of the secondary school curriculum leading to the Junior Examination. A Junior High School is one which provides primary and post-primary education to Junior level. At some centres where there is no high school, post-primary subjects are taught at the primary school.

Children who do not enter for the Junior Examination may elect to sit for a High School Certificate examination, which is also taken at about the age of fifteen years.

It is anticipated that the Junior Certificate will ultimately be replaced by a Certificate of Achievement. An amendment made to the Education Act in 1969 provides for the establishment of a Board of Secondary Education. The principal functions of the Board are, in respect of secondary schools and other bodies and institutions conducting courses of secondary education, to approve courses of study ; assist in assessment of students ; ensure comparability of such assessments ; and issue Certificates of Achievement to students.

The following table shows the number of schools in each category, the number of teachers employed in primary and secondary education and the number of pupils classified according to grade of education, for each of the years 1964 to 1968. The figures shown under the heading ' On special duties ' represent teachers engaged in activities associated with the Division of Special Services and the Special Branches of the Department.

GOVERNMENT SCHOOLS

Particulars	At 1 August—				
	1964	1965	1966	1967	1968
NUMBER OF SCHOOLS					
Primary schools	461	466	473	481	482
Junior high schools	37	38	37	37	40
High schools	16	18	20	19	19
Senior high schools	21	22	25	28	29
Total	535	544	555	565	570
NUMBER OF TEACHERS (*a*)					
Engaged in teaching duties	4,713	4,934	5,213	5,534	5,910
On special duties	74	92	92	110	121
On leave	107	78	90	90	110
Total	4,894	5,104	5,395	5,734	6,141
Males	2,641	2,734	2,766	2,869	3,072
Females	2,253	2,370	2,629	2,865	3,069
Total	4,894	5,104	5,395	5,734	6,141
NUMBER OF PUPILS					
Grade of education—					
Primary	100,343	102,230	105,893	110,842	115,226
Secondary—Years 1, 2 and 3	33,202	34,311	36,144	38,695	40,429
Years 4 and 5	4,028	4,410	4,851	5,438	5,761
Total	137,573	140,951	146,888	154,975	161,416
Males	72,358	74,103	77,404	81,558	85,002
Females	65,215	66,848	69,484	73,417	76,414
Total	137,573	140,951	146,888	154,975	161,416

(*a*) Excluding persons teaching part-time.

Primary and Secondary Curriculum

In primary schools the subjects taught are English, mathematics, social studies, elementary science, physical education, handicrafts, music and art. Handicrafts in the primary schools consist of needlework for girls and such crafts as leatherwork, bookbinding, papiermache work and canework for boys. At the post-primary levels, mathematics, languages, science subjects, economics, home science, woodwork, metal work and technical drawing are introduced. The teaching of elementary science aims at a better understanding of the child's physical environment. The course is adapted to the conditions of the particular neighbourhood, and so varies between town and country areas. In musical expression, choral singing receives most attention, although school orchestras are being developed in some primary and high schools. Advisory teachers, under the direction of specialist superintendents, assist teachers in the fields of handicrafts, physical education, art, music, speech, drama and elementary science.

Education in the government schools is secular in character but periods are set aside during which representatives of various religious denominations attend to give religious instruction. In addition, instruction in scripture stories is given by class teachers.

The general curriculum differs slightly between urban and rural areas, an example being the teaching of elementary agricultural science in country schools. It is nevertheless sufficiently consistent to ensure a uniform standard of education throughout the State.

Radio, Television and Film Aids

Extensive use is made of radio and films, most schools having radio receivers and many being equipped also with film projectors and sound-reproduction systems. The use of television is increasing, particularly in secondary schools, as an aid in the teaching of mathematics, science, literature, social studies and languages. The Australian Broadcasting Commission co-operates with the Education Department in providing suitable radio and television programmes and Parents and Citizens' Associations assist in supplying the necessary equipment. The Audio-Visual Education Branch of the Department provides a wide variety of audio-visual aids.

Student Counselling and Vocational Guidance

Guidance officers of the Division of Special Services are available to discuss with parents the most suitable courses of study for their children and vocational guidance is given to pupils leaving high school. In addition, cases of handicapped or educationally retarded children are investigated and appropriate courses of education recommended.

Special Schools and Classes

The Division of Special Services provides a variety of assistance for physically and mentally handicapped children. A Kindergarten and Infant School for Deaf Children is maintained, as well as a Deaf School for older pupils. Special classes are organised for the blind and for the mentally handicapped, and instruction is given to patients at the Princess Margaret Hospital for Children and at other hospitals. The Department co-operates with welfare organisations, such as the Spastic Welfare Association and the Slow Learning Children's Group, by making teachers available to them.

Correspondence Tuition

The Western Australian Correspondence School provides tuition by correspondence for children living in remote areas or unable to attend school for other reasons. The service extends also to post-primary students in the smaller country schools, to sick and invalid children, and to some adults in country areas. Adults enrol mainly to prepare for nursing training or for the Junior Examination and similar examinations, or to improve their general education. At 1 August 1968, students enrolled in the Correspondence School comprised 487 primary and 719 secondary students. Of the total of 1,206 students, 401 were aged eighteen years and over.

Schools of the Air are conducted through the radio network of the Royal Flying Doctor Service from bases at Carnarvon, Derby, Kalgoorlie, Meekatharra and Port Hedland to supplement tuition provided by the Correspondence School.

Education of Aborigines

Aboriginal and part-Aboriginal children are admitted to ordinary schools and are educated under the same conditions as other children. For schools with a preponderance of Aborigines, special attention is directed to the framing of courses of study suited to the vocational needs of the older Aboriginal pupils. In August 1968 there were 4,998 Aboriginal and part-Aboriginal children at government primary schools and high schools and 1,040 at non-government schools.

Agricultural Education

Agricultural education is provided at certain high schools. Residential accommodation is available at the Narrogin Agricultural Senior High School, the Harvey Agricultural High School and the Agricultural Junior High Schools at Cunderdin and Denmark. Day instruction is provided by high schools at Esperance, Kojonup, Manjimup, Margaret River, Morawa, Mount Barker and Wyalkatchem. Preference is given to the sons of farmers but other suitably qualified boys, with the physical capacity for farm work, are admitted. The curriculum is designed as a continuation of general education to standards equivalent to those of other types of schools but with appropriate vocational emphasis. The aim is to produce young men capable of becoming leaders in rural communities as well as being successful farmers with an appreciation of the value of scientific methods in agriculture. Each school providing agricultural instruction has agricultural land attached to it.

In addition to the activities of the Education Department in the field of agricultural education, facilities are also provided by Muresk Agricultural College, a department of The Western Australian Institute of Technology (see letterpress on pages 174-5).

Technical Education

Institutions under the control of the Technical Education Division at 30 June 1968 comprised five technical colleges, six technical schools, eight technical centres with full-time officers in charge, and sixty-one technical centres with part-time officers in charge. One of the colleges, the Technical Extension Service, conducts correspondence courses and extension classes to provide instruction where it is not practicable to establish a technical school or centre. The Division has a Counselling Service which is available to advise students in selecting a course, to assist them in their studies, and to provide consultant services to industry and commerce on staff selection and training.

Courses leading to the award of a Diploma or a Certificate are available on a full-time or a part-time basis, instruction ranging from the training of technicians to the preparation of students for professional occupations. Part-time classes are established at all technical schools and centres, subject to local demand for tuition and availability of teaching staff.

The Perth Technical College offers a variety of diploma and certificate courses as well as courses of a general educational nature, and trade training in printing. It also caters for cultural and leisure-time interests by providing instruction in a range of basic skills. The Fremantle Technical College has a matriculation group and also offers a wide variety of trade courses, including shipwrighting, fitting and machining, and sheep and wool technology. The work of the Leederville Technical College relates mainly to the building industry and furnishing trades, but it also accommodates a matriculation group. The Mount Lawley Technical College provides training in baking, hairdressing and the electrical and meat industry trades, as well as commercial vocational training.

The Wembley Technical School provides courses for apprentices in the engineering trades, while the Carlisle Technical School is concerned mainly with training for trades associated with the automotive industry. Technical schools at Claremont, Midland, Bunbury and Kalgoorlie aim to meet the needs of the districts in which they are situated and give tuition in those subjects for which there is sufficient local demand.

There are sixty-nine technical centres, where evening classes are provided. Eighteen of these are located at the Department's ordinary metropolitan schools and forty-nine at its country schools. The two remaining centres are country technical training centres not associated with a school.

Apprentices who live within reach of a technical school providing the appropriate instruction must attend classes, usually for eight hours per fortnight. For apprentices in country areas correspondence courses, sometimes conducted in supervised study groups, are available as well as intensive courses during which they have access to the full range of specialised instructors and equipment in the metropolitan area. Reference to the numbers of persons apprenticed to various trades will be found in Chapter X.

At all technical schools and centres where there is enough demand and teachers can be provided, instruction is given in such leisure-time activities as dressmaking, millinery, cookery, home furnishing, pottery, woodwork and motor vehicle maintenance.

TECHNICAL EDUCATION

Particulars	1964	1965	1966	1967 (*a*)	1968
Number of—					
Teaching positions (*b*)—					
Full-time	444	505	606	497	528
Part-time	1,398	1,632	1,710	1,822	1,820
Total	1,842	2,137	2,316	2,319	2,348
Students enrolled (*c*)—					
Males	34,399	37,326	39,161	39,140	38,557
Females	16,711	18,114	19,396	20,612	25,443
Total	51,110	55,440	58,557	59,752	64,000
Average weekly student hours	126,706	137,681	149,527	132,640	142,132

(*a*) During 1967 much of the senior work of the Technical Education Division was transferred to The Western Australian Institute of Technology (see pages 173–6). (*b*) At 1 July. A teacher may occupy teaching positions at more than one school or centre ; the number of individual teachers is not available. (*c*) At 1 July.

Teacher Education

Teacher education is conducted by the Education Department at three colleges especially established for the purpose, the first at Claremont in 1902, the second at Graylands in 1955, and the third (for secondary teachers) on a site adjacent to the University in 1967.

TEACHERS' COLLEGES

Particulars	1964	1965	1966	1967	1968
Number of—					
Lecturers (*a*)	68	70	74	82	109
Students enrolled (*a*)—					
Departmental (*b*)—					
Primary course	772	611	790	860	993
Secondary course	489	797	838	911	931
On study leave	30	30	36	48	49
Private (*b*)	35	25	35	47	41
Total	1,326	1,463	1,699	1,866	2,014
Students graduating—					
Departmental (*b*)	459	455	555	635	695
Private (*b*)	14	16	22	35	29
Total	473	471	577	670	724

(*a*) At 1 August. (*b*) ' Departmental ' students are those who have entered into an agreement to serve with the Education Department for a period after completion of the course ; ' Private ' students are those who have not entered into such an agreement.

The basic course is of three years' duration. The minimum requirement for entrance is a pass in English and three other subjects of the Leaving Examination, or its equivalent. Selected students may study in extended fields for periods of from three to six years to

obtain University degrees and/or other qualifications. There is also a one-year training course open to University graduates and to associates of The Western Australian Institute of Technology.

The total number of students enrolled at 1 August 1968 was 2,014. Of this total, 775 were at the Claremont college, 423 at the Graylands college and 816 at the secondary teachers' college.

NON-GOVERNMENT SCHOOLS

The non-government schools, which are conducted mainly by religious organisations, provide education from kindergarten to the end of the secondary school course, equivalent to the final year in the government high schools. The curriculum at the primary and secondary levels is substantially the same as that in the government schools.

NON-GOVERNMENT SCHOOLS (*a*)

Particulars	At 1 August—				
	1964	1965	1966	1967	1968
NUMBER OF SCHOOLS (*a*)					
Denomination—					
Church of England	15	13	12	12	12
Methodist	5	5	5	5	4
Presbyterian	3	3	3	5	6
Roman Catholic	178	185	183	182	180
Other	11	9	10	11	12
Undenominational	152	157	170	180	171
Total	364	372	383	395	385
NUMBER OF TEACHERS (*b*)					
Denomination of school—					
Church of England	191	197	204	211	231
Methodist	77	80	91	93	101
Presbyterian	62	71	72	77	85
Roman Catholic	856	901	892	948	965
Other	36	40	40	44	48
Undenominational	264	267	284	329	295
Total	1,486	1,556	1,583	1,702	1,725
Males	342	364	383	405	428
Females	1,144	1,192	1,200	1,297	1,297
Total	1,486	1,556	1,583	1,702	1,725
NUMBER OF PUPILS					
Denomination of school—					
Church of England	3,524	3,636	3,741	3,838	3,970
Methodist	1,445	1,527	1,631	1,731	1,782
Presbyterian	1,168	1,198	1,262	1,331	1,393
Roman Catholic	30,224	31,099	31,418	32,315	32,861
Other	776	757	819	892	972
Undenominational	5,402	5,991	6,580	7,352	7,579
Total	42,539	44,208	45,451	47,459	48,557
Grade of education—					
Kindergarten (*c*)	6,219	6,684	7,369	8,098	8,318
Primary	23,579	24,234	24,024	24,551	24,757
Secondary—Years 1, 2 and 3	9,882	10,299	10,794	11,389	11,833
Years 4 and 5	2,859	2,991	3,264	3,421	3,649
Total	42,539	44,208	45,451	47,459	48,557
Males	20,504	21,416	21,939	22,776	23,379
Females	22,035	22,792	23,512	24,683	25,178
Total	42,539	44,208	45,451	47,459	48,557

(*a*) Including kindergarten schools. (*b*) Excluding persons teaching part-time. (*c*) Comprises pupils attending kindergarten schools and pupils in kindergarten grades at other non-government schools. The numbers of such pupils at 1 August 1968 were 7,989 and 329 respectively.

Kindergarten schools and teachers are included in the previous table. Almost all the schools shown under the heading *Undenominational* are kindergartens. The Education Act requires that every person conducting a kindergarten must hold a permit issued for the purpose by the Education Department. The Kindergarten Association of Western Australia, Incorporated, a voluntary organisation subsidised from government funds, maintains a training college for kindergarten teachers.

At 1 August 1968 the number of kindergartens registered with the Education Department was 186 of which 94 were affiliated with the Kindergarten Association.

KINDERGARTEN ASSOCIATION OF WESTERN AUSTRALIA

Particulars	1964	1965	1966	1967	1968
KINDERGARTEN TEACHERS' COLLEGE					
Number of—					
Professional staff (*a*)	4	4	4	5	7
Students—					
New enrolments	20	19	25	29	28
Total enrolments	52	52	64	70	77
Graduating	16	14	16	17	21
KINDERGARTENS					
Number of (*a*)—					
Kindergartens	69	71	79	83	94
Children enrolled	3,120	3,538	3,952	4,420	4,770
Staff—					
Teachers	77	80	88	92	95
Other	61	63	70	81	100

(*a*) At 30 June.

THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

The Western Australian Institute of Technology is a college of advanced education, established in terms of the *Western Australian Institute of Technology Act, 1966-1969* as an autonomous body under the control of a governing council. The main functions of the Institute, as set out in the Act, are to provide facilities for higher specialised instruction and to advance training in the various branches of technology and science; to aid the advancement, development and practical application to industry of science or any techniques; and to encourage and provide facilities for the development and improvement of tertiary education whether on a full or part-time basis to meet the needs of the community in the State.

The development of the Institute became necessary on account of the rapid growth in the numbers of students seeking education in the professional and technological fields, and the need for modern facilities and equipment. Buildings for the Institute were commenced in 1963 on a site of some 277 acres at Bentley, approximately seven miles from the Perth city centre, and the initial group of buildings was officially opened on 17 August 1966. The administration and associated buildings were officially opened on 11 October 1968.

Courses leading to the Associateship of The Western Australian Institute of Technology comprise three years' full-time study or the part-time equivalent. (In the case of Architecture the three-year full-time course is followed by two years' part-time study while in approved employment). To qualify for entry a student must have passed in at least five subjects at Leaving Examination level or at the equivalent Technical Education Division examinations of the Education Department. In some courses a student over the age of twenty-three years without the normal entrance requirements may sit for an Institute Mature Age Examination to gain admission. Qualifications held by students entering from secondary schools in other States or countries, or from other institutions, are assessed prior to admission to courses.

Associateship courses are provided in Accounting, Administration, Applied Chemistry, Applied Geology, Applied Physics, Applied Science (Biology, Chemistry, Mathematics and Physics), Architecture, Art, Art Teaching, Asian Studies, Commerce, Design, Engineering, (Civil, Communications, Electrical, Electronic, Mechanical, Mining, Production), English, Fine Art, Geophysics, Home Economics, Industrial Arts, Information Processing, Mathematics, Medical Laboratory Technology, Metallurgy, Nutrition, Occupational Therapy, Pharmacy, Physiotherapy, Secretarial and Administrative Practice, Social Work, Surveying, and Town and Regional Planning.

The Institute also offers diploma courses in Applied Linguistics, Educational Administration, Home Economics, Quantity Surveying, and Valuation, and post-graduate diploma courses in Administration and Applied Physics.

On 1 January 1969 the Institute took over the administration and academic control of the Royal Perth Hospital School of Occupational Therapy, the School of Physiotherapy, the School of Mines of Western Australia and Muresk Agricultural College.

School of Mines of Western Australia

The School of Mines of Western Australia was established at Coolgardie in 1902 and was transferred to Kalgoorlie in the following year. Control of the School of Mines, formerly part of the Department of Mines, passed to The Western Australian Institute of Technology in January 1969.

Associateship courses are available in Engineering (Civil, Electrical, Mechanical, Mining), Metallurgy, and Mining Geology.

These are professional courses for which the entrance requirement is a pass in specified subjects at the Leaving Examination or its equivalent. The courses are arranged to occupy two years of full-time study followed by two years of part-time study, but they can for the most part be completed by wholly full-time or wholly part-time study. Senior Certificate courses, for which the entrance requirements are less stringent than those for associateship courses, are also available. These courses normally occupy three years of part-time study, with day release from industry.

Through the Kalgoorlie Metallurgical Laboratory, the School undertakes metallurgical investigations as well as assays for gold or for other metals. Free assays and mineral determinations are made available for *bona fide* prospectors.

The School has a geological museum which is open to the public and contains rocks and minerals from all over Australia and elsewhere.

The number of students enrolled in 1969 was 245.

Muresk Agricultural College

Muresk Agricultural College, situated eight miles south of Northam in the Avon valley, was established by the Department of Agriculture in 1926. Control of the College was transferred to The Western Australian Institute of Technology in January 1969.

The College course, which is at tertiary level, leads to a Diploma of Agriculture. It is of two years' duration and is fully residential. The entrance requirement is a pass in four or more subjects at Leaving Examination level, preference being given to those applicants who have passed in English, Chemistry, Physics and a unit of Mathematics.

The course is designed to give a sound scientific, technical and managerial training suitable for those wishing to become farm owners or managers, or to work in industries servicing agriculture. The subjects studied are Plant Sciences and Husbandry, Animal Sciences and Husbandry, Agricultural Engineering, Farm Management, Soil Science, Humanities and Practical Farm Work. Instruction is given by means of lectures, assignments, laboratory and workshop practical work, demonstrations, tutorials, day tours to farms and research stations, extended tours into the agricultural areas, and practical farming on the College estate.

The estate of 4,000 acres is devoted to mixed farming and provides the students with an opportunity to gain a considerable amount of practical experience by observation,

demonstration and actual participation in a wide variety of farming activities. Use is made of the College facilities for various research projects. High quality stock from the College's herds and flocks is available to Western Australian farmers.

From time to time short courses are held at the College. These include in-service training schools for personnel of the Department of Agriculture and for field and service staff of agricultural firms.

The number of students enrolled at the College in 1969 was fifty-seven.

Teachers, Students and Awards Conferred

The following table gives particulars of teaching staff in each of the years 1967 to 1969. The number of associateships and diplomas conferred is also shown.

THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY

Particulars	1967	1968	1969
NUMBER OF TEACHING STAFF (*a*)			
Full-time—			
School and department heads	12	13	16
Senior lecturers	14	31	37
Lecturers	118	133	149
Assistant lecturers		15	16
Tutors, demonstrators	39	60	85
Total, Full-time	183	252	303
Part-time (*b*)—			
Teaching staff	n.a.	13	30
Tutors, demonstrators	n.a.	2	2
NUMBER OF STUDENTS (*c*)			
Full-time	1,224	1,558	1,680
Part-time	1,609	1,931	2,565
Correspondence	....	223	334
Total	2,833	3,712	4,579
Males	n.a.	3,119	3,776
Females	n.a.	593	803
Total	2,833	3,712	4,579
ASSOCIATESHIPS AND DIPLOMAS CONFERRED			
School or department—			
Accounting and business studies	10	17	13
Administrative studies	8	30	31
Agriculture	....	....	17
Architecture	15	41	21
Art and design	12	7	13
Chemistry	14	17	14
Engineering—			
Civil	26	25	32
Electrical	13	16	16
Mechanical	20	10	16
Home economics	7	16	18
Mathematics	....	1	5
Mines	....	....	7
Pharmacy	18	29	46
Physics	20	19	22
Therapy	....	....	31
General studies	3	25	29
Total	166	253	331
Males	n.a.	225	261
Females	n.a.	28	70
Total	166	253	331

n.a. denotes ' not available '.

(*a*) At 30 June. (*b*) Expressed on the basis of full-time staff equivalents. (*c*) Figures for 1967 and 1968 are as at 30 June ; those for 1969 are as at 30 September.

Finance

The following table relates to income and expenditure of The Western Australian Institute of Technology in each year from 1967 to 1969.

THE WESTERN AUSTRALIAN INSTITUTE OF TECHNOLOGY—FINANCE
($'000)

Particulars	1967	1968	1969
INCOME			
Income for specific capital purposes (*a*)—			
Commonwealth Government grants	281	697	1,765
State Government grants	281	697	1,765
Total	562	1,394	3,530
Income for other purposes—			
Commonwealth Government grants	639	883	1,395
State Government grants	1,129	1,485	2,233
Donations and endowments	6	45	54
Student fees (*b*)	53	153	289
Other	....	5	59
Total	1,828	2,570	4,030
TOTAL INCOME	2,390	3,964	7,560
EXPENDITURE			
Salaries and wages	1,239	2,047	2,595
Library	57	29	48
Buildings, grounds and equipment	674	1,420	3,580
Minor equipment	195	62	94
Sundry auxiliary expenditure	218	361	1,203
TOTAL EXPENDITURE	2,383	3,918	7,520

(*a*) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (*b*) Excludes fees collected on behalf of student organisations.

THE UNIVERSITY OF WESTERN AUSTRALIA

University education first became available in Western Australia in 1898, with the formation of the Extension Committee of the University of Adelaide by which facilities were provided for external studies in courses for degrees in Arts and Science. The first step towards the establishment of a university in Western Australia was taken in 1904, when a University Endowment Act providing for the incorporation of a trust to administer funds for the purpose was passed by the State Parliament. Following a favourable report made by a Royal Commission under the chairmanship of Dr (later Sir Winthrop) J. W. Hackett, the University was established by the University of Western Australia Act of 1911. Teaching began in 1913 in subjects related to the Faculties of Arts, Science and Engineering. Additional Faculties established since that time are those of Law (1927), Agriculture (1936), Dental Science (1946), Education (1947), Economics (1954), Medicine (1956) and Architecture (1966). The Faculty of Economics was reconstituted as the Faculty of Economics and Commerce in 1961.

Matriculation Requirements

Under revised regulations introduced in 1969, a student wishing to matriculate at the University must pass the Leaving Examination in English and four other subjects selected from specified groups. All these subjects must be passed at leaving level, and three subjects other than English at matriculation level. The matriculation level examinations require a student ' to give more evidence of ability and experience in study in depth '. A candidate must pass all these examinations in the same year, or pass all the leaving level examinations in one year and the matriculation level examinations in the following year. A part-time student is allowed three years to complete the requirements.

Matriculant status may be granted to an applicant who has satisfied the examination requirements of any other university in Australia, New Zealand or the United Kingdom qualifying him for matriculation.

The regulations provide for a Mature Age Examination enabling the provisional admission to a University course of persons over the age of twenty-one years who have not otherwise qualified for matriculation. Candidates take certain papers in the Leaving Examination as follows : English at leaving level ; one other subject selected from a specified list at both leaving and matriculation levels. A pass in the Mature Age Examination is recognised as qualifying for provisional admission to the Faculty of Arts (for Bachelor of Arts and Bachelor of Psychology degree courses) and to the Faculties of Education and Economics and Commerce. Full matriculation status is granted on successful completion of the first academic year, *i.e.* a pass in four first-year units of the course of study.

Provision is made for admission to some Faculties of persons holding certain certificates or diplomas or other specified qualifications.

Degrees

Degrees are granted in the Faculties of Arts, Law, Education, Economics and Commerce, Science, Engineering, Agriculture, Dental Science, Medicine and Architecture.

Courses for the degrees of Bachelor of Arts, Bachelor of Economics, Bachelor of Commerce and Bachelor of Science extend over a period of not less than three years; those for the degrees of Bachelor of Music, Bachelor of Psychology, Bachelor of Laws, Bachelor of Education, Bachelor of Engineering and Bachelor of Science in Agriculture, over not less than four years; and those for the degrees of Bachelor of Dental Science and Bachelor of Architecture over not less than five years. Honours degree courses in Arts, Music, Psychology, Economics, Commerce and Science are usually of four years' duration, and five years in Education. The course in the Faculty of Medicine for the degrees of Bachelor of Medicine and Bachelor of Surgery extends over six years, and that for the degree of Bachelor of Medical Science over four years or five years according to the subjects taken. The degrees of Master of Arts and Doctor of Letters, Master of Music and Doctor of Music, Master of Psychology, Master of Laws and Doctor of Laws, Master of Education, Master of Economics, Master of Commerce, Master of Science and Doctor of Science, Master of Engineering Science, Master of Engineering and Doctor of Engineering, Master of Science in Agriculture and Doctor of Science in Agriculture, Master of Dental Science and Doctor of Dental Science, Master of Surgery and Doctor of Medicine, Master of Architecture, and Master of Building Science, are conferred by the University. The degree of Doctor of Philosophy is also given for research in all faculties with the exception of the Faculty of Law.

University Government

The original Act provided that the Senate and Convocation should constitute the governing authority with power to make statutes for ' the management, good government and discipline of the University'.

The Senate consists of twenty-two members, of whom six are appointed by the Governor, six are elected by Convocation, two are elected by the full-time teaching staff, four are *ex officio* members (the Vice-Chancellor of the University, the Under Treasurer of the State, the Director-General of Education and the President of the Guild of Undergraduates), and four are co-opted members. Convocation consists of graduates of the University and such other persons as are eligible for membership under the provisions of the University of Western Australia Act.

Since an amendment to the Act in 1944 the Senate alone has been the governing authority and is responsible, subject to the Act and the statutes, for the entire control and management of the University. Statutes originate in the Senate and are submitted to Convocation for its consideration, and although Convocation may suggest amendments the Senate is not bound to accept them. The Act requires that statutes shall be submitted to the Governor for approval, after which they have the force of law.

The Chancellor is the titular head of the University. He is elected annually by the Senate from among its members and presides over its meetings. The Vice-Chancellor is the chief executive officer of the University and is appointed by the Senate for a period not exceeding ten years, at the end of which term he is eligible for reappointment. At meetings of Convocation the chairman is the Warden who is elected annually by Convocation from among its members.

The Guild of Undergraduates is constituted under the Act as an association of undergraduates ' for furthering of their common interests, and shall be the recognised means of communication between the undergraduates and the governing authority of the University'. The government of the student body is vested in the Guild Council to which the Senate appoints two of its own members, the remaining members of the Council being elected in accordance with regulations made by the Guild.

Student Fees and Scholarships

The Royal Commission appointed to inquire into the establishment of a University recommended that teaching should be free and suggested that ' if fees are found to be necessary, they should be on the lowest possible scale'. Until 1962 lecture fees were not charged to students normally resident in Australia, except those in the Faculty of Medicine, where tuition fees were payable in the second and later years, and those enrolled at the Western Australian College of Dental Science, an institution affiliated with the University, who paid lecture fees to the College. All students paid a ' faculty service charge ' designed to cover such items as the use of the library, annual examination fees, the use of laboratory equipment, and the lecture synopses provided in some courses. To assist in meeting the increasing costs of operation resulting from a rapidly growing student population and to enable the University to take full advantage of financial aid available under Commonwealth legislation, a system of annual ' enrolment fees ' was introduced in 1962. The current tuition fees are based on an annual course fee for all full-time bachelor degree courses. Part-time students' fees are assessed proportionately, according to the number and type of subjects to be taken during the year. The fees for higher degree students are also related to the basic scale. Subscriptions to the Guild of Undergraduates and to certain faculty associations are payable by all students enrolled for one or more full units towards a bachelor degree.

Financial assistance is available to students under the Commonwealth University Scholarship Scheme. Awards are made on merit and, in addition to having their compulsory fees paid, scholarship holders may receive a living allowance which is subject to a means test. Hackett Bursaries are offered each year for students of merit whose means make it difficult for them to undertake or continue a full-time undergraduate course. The State Government provides a number of University Exhibitions for competition among candidates at the Leaving Examination. In addition, the University is able to grant a limited number of fees bursaries each year from special endowment funds.

As well as the normal awards under the Commonwealth University Scholarship Scheme, there is provision in the scheme for financial assistance for post-graduate studies in the form of a living allowance, which is not subject to a means test, and payment of fees. The University also provides, from its own funds, research studentships for post-graduate study which are competed for by students holding no other award and having an Honours degree of second class (Division A), or higher, standard. Hackett Scholarships, tenable at the University of Western Australia or in special circumstances at other recognised institutions in Australia, are open to graduates of the University. Graduates may also apply for Hackett Studentships which, in addition to other financial benefits, may carry a travel grant where the Student elects to study overseas or in another State. Some large private industrial concerns also make annual awards for study at post-graduate level.

As a contribution towards University fees, the State Government provides financial assistance of $48 per year for a full-time student, permanently domiciled in the State, who is proceeding to a first degree and who is not the holder of a scholarship or bursary of a value equal to, or greater than, half the amount of the tuition fees.

Teachers, Students, Degrees Conferred

The following table gives particulars of teaching staff and students at 31 July in each of the years from 1964 to 1968. The numbers of degrees conferred during each of these years are also shown. Information in greater detail is available from the publications *University Statistics: Part 1—Students and Degrees Conferred* and *Part 2—Staff and Libraries*, which are issued annually by the Commonwealth Statistician, Canberra.

UNIVERSITY OF WESTERN AUSTRALIA

Particulars	1964	1965	1966	1967	1968
NUMBER OF TEACHING STAFF					
Full-time—					
Professors	41	44	44	47	53
Readers	38	37	38	41	45
Senior lecturers	101	110	111	119	122
Lecturers	91	99	95	105	115
Tutors, demonstrators	26	31	67	58	68
Total, Full-time	297	321	355	370	403
Part-time (*a*)—					
Lecturers	24	38	43	30	32
Graduate assistants, tutors, demonstrators	299	341	384	355	468
NUMBER OF STUDENTS					
Internal, full-time	2,697	2,971	3,362	3,796	4,079
,, part-time	1,483	1,681	1,814	1,926	2,178
External	385	370	323	305	310
Total	4,565	5,022	5,499	6,027	6,567
Males	3,496	3,805	4,084	4,402	4,732
Females	1,069	1,217	1,415	1,625	1,835
Total	4,565	5,022	5,499	6,027	6,567
DEGREES CONFERRED (*b*)					
Agriculture	10	30	23	26	31
Arts	193	223	215	259	262
Commerce	....	8	20	24	31
Dental Science	11	10	11	13	9
Economics	22	32	40	47	32
Education	26	19	48	42	43
Engineering	36	39	38	38	41
Law	24	25	26	36	23
Medicine	45	40	41	39	45
Music	....	1	2	3	2
Psychology	....	9	11	13	7
Science	121	160	163	168	179
Total	488	596	638	708	705
Males	372	460	475	520	540
Females	116	136	163	188	165
Total	488	596	638	708	705

(*a*) Figures represent units of 100 hours of teaching time per annum. (*b*) Excluding honorary degrees.

Tuition

In addition to the normal lectures and tutorials for full-time students, courses for part-time students are offered in the Faculties of Arts, Education, and Economics and Commerce. Certain subjects may be taken at institutions affiliated with the University. These are The Western Australian Institute of Technology, the Secondary Teachers' College, Claremont Teachers' College, and Graylands Teachers' College.

Residents of Western Australia living outside the metropolitan area are able to enrol as external students in the Faculties of Arts, Education, and Economics and Commerce.

Colleges and Hall of Residence

There are four residential colleges within the University. For men students, Saint George's College is conducted by the Church of England, Saint Thomas More College by the Roman Catholic Church and Kingswood College by the Methodist Church. Saint Catherine's College is an undenominational college for women students. A fifth college, Saint Columba, which is under construction, will be conducted jointly by the Presbyterian Church and the Congregational Church for the accommodation of men and women students.

Currie Hall is an undenominational hall of residence for men students.

Finance

The following table relates to the income and expenditure of the University of Western Australia in each year from 1964 to 1968. Information in greater detail is available in the publication *University Statistics: Part 3—Finance*, issued annually by the Commonwealth Statistician, Canberra.

UNIVERSITY OF WESTERN AUSTRALIA—FINANCE
($'000)

Particulars	1964	1965	1966	1967	1968
INCOME					
Income for specific capital purposes (*a*)—					
Commonwealth Government grants	702	909	1,226	476	509
State Government grants	368	909	1,237	436	509
Total	1,070	1,818	2,463	912	1,018
Income for other purposes—					
Commonwealth Government grants	2,032	2,504	2,782	3,215	3,386
State Government grants	2,560	3,201	3,080	3,363	3,842
Donations and endowments	452	491	638	681	865
Student fees (*b*)	680	849	1,155	1,253	1,423
Other	558	648	634	723	852
Total	6,282	7,693	8,288	9,236	10,368
TOTAL INCOME	7,352	9,511	10,751	10,148	11,386
EXPENDITURE					
Teaching and research	4,166	5,545	5,528	6,303	6,693
Administration and general overhead	478	570	626	702	806
Libraries	300	350	402	416	480
Buildings, premises, grounds	2,098	2,038	2,249	2,046	2,098
Sundry auxiliary expenditure	630	753	765	790	992
TOTAL EXPENDITURE	7,672	9,257	9,571	10,258	11,069

(*a*) Income received specifically for new buildings, major alterations and additions to buildings, installation of services, purchase of land and buildings and major equipment. (*b*) Excludes fees collected on behalf of student organisations.

Public Examinations Board

The Public Examinations Board, which is comprised of representatives of the University, the Education Department, and the non-government secondary schools, is constituted by University statute for the purpose of conducting the Junior and Leaving Examinations. The Junior Examination is normally taken by pupils at the end of the third year of the secondary school course. The Leaving Examination is the final examination in the Western Australian secondary education system.

The Board may also consider matters relating to the conditions for matriculation and for admission to courses for degrees or diplomas, and may make recommendations to the Boards or Faculties concerned. Reference to current matriculation requirements will be found on pages 176-7.

Adult Education and Extension Committee

The Adult Education and Extension Committee was established by the Senate of the University in 1968 as a result of the reorganisation of the former Adult Education Board which had been created by the University in 1928. The policies of the Committee are implemented by the Director of Adult Education and by the Head of Extension. The headquarters of the organisation are at the University.

Adult Education classes are conducted at city premises in Perth as well as at the University, and various activities in the metropolitan and country areas are arranged. These are generally non-vocational in character. During the year several series of classes, lectures and discussions are conducted, and a Summer School is held at the University each year.

The Extension Service is responsible mainly for post-graduate and refresher courses as well as certain cultural activities. It works in close liaison with University departments and faculties. The Extension Service is engaged principally in conducting conferences, symposia and seminars. Members of its staff are also involved during the summer months in work connected with the annual Festival of Perth.

STATE GOVERNMENT EXPENDITURE ON EDUCATION

The following table shows the amounts expended on education from State Government funds during the five-year period ended 30 June 1968.

STATE GOVERNMENT EXPENDITURE ON EDUCATION
($'000)

Classification	1963–64	1964–65	1965–66	1966–67	1967–68
CONSOLIDATED REVENUE FUND					
Administration and general	1,077	1,222	1,374	1,277	1,383
Primary	12,746	14,273	16,196	17,524	19,814
Secondary	6,899	7,744	9,386	10,166	12,055
Technical	3,073	3,731	4,594	5,230	5,933
Agricultural	240	277	284	339	406
University	2,381	2,871	3,144	3,200	3,779
Training of teachers	1,768	1,896	2,268	2,506	2,901
Transport of school children	2,363	2,611	2,673	3,044	3,156
Other	38	75	44	42	37
Total	30,584	34,701	39,962	43,328	49,463
GENERAL LOAN FUND					
Primary	3,213	2,775	3,355	3,467	3,946
Secondary	1,702	2,260	3,897	4,191	3,447
Technical	824	1,823	279	726	1,526
Agricultural	106	34	54	12	25
University	841	450	159	1,050	266
Training of teachers	46	4	33	....	....
Other	126	272	318	450	580
Total	6,858	7,618	8,095	9,896	9,791

COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION

Although education is primarily the responsibility of the States, the Commonwealth Government has instituted a number of measures of direct assistance to students and educational institutions.

Scholarships and Awards

The Commonwealth Department of Education and Science administers five major scholarship schemes. The Postgraduate Award, University Scholarship and Advanced Education Scholarship schemes come within the authority of the Commonwealth Scholarships Board, which provides advice on the administration of the schemes and on policy

matters connected with them. The Commonwealth Secondary Scholarship Scheme, which came into operation at the beginning of 1965, is administered by the Department of Education and Science, with the co-operation of the State education authorities in selection examination arrangements. The Commonwealth Technical Scholarship Scheme also came into operation at the beginning of 1965. Detailed information on these schemes is contained in the annual reports of the Commonwealth Scholarships Board and the Department of Education and Science.

COMMONWEALTH SCHOLARSHIPS AND AWARDS
WESTERN AUSTRALIA

Scheme	1967			1968		
	Number of—		Expenditure (*b*)	Number of—		Expenditure (*b*)
	Scholarships awarded	Scholars in training (*a*)		Scholarships awarded	Scholars in training (*a*)	
			$'000			$'000
Postgraduate Award	29	59	113	25	63	129
University Scholarship	626	1,441	885	651	1,641	919
Advanced Education Scholarship	77	177	53	89	220	71
Secondary Scholarship	736	1,392	448	730	1,420	459
Technical Scholarship	146	217	53	216	247	76
Total	1,614	3,286	1,552	1,711	3,591	1,654

(*a*) At 30 June. (*b*) Year ended 30 June.

Universities

Following a report submitted by a committee of inquiry appointed to report on university finances and requirements, the Commonwealth, since 1951, has made matched grants to the States for recurrent expenditure on university purposes. Since 1958 the Commonwealth has also assisted with the capital needs of the universities for building projects and for equipment, and has provided grants for the building programmes of residential colleges affiliated with universities.

Since 1961, Commonwealth assistance to the States in respect of the recurrent expenditures of universities has been on the basis of $1 of Commonwealth money for every $1.85 of income received by a university from fees and State grants. Grants in respect of capital expenditures are provided on a $1 for $1 basis from the Commonwealth and the State.

In 1959, following the Report of the Committee on Australian Universities, the Commonwealth Government established the Australian Universities Commission under the *Australian Universities Commission Act* 1959. The Commission's principal functions are to advise on financial assistance to Commonwealth universities and to States in relation to their universities and also on the balanced development of Australian universities. Commonwealth financial assistance grants, based on the Commission's recommendations, have been authorised by a series of States Grants (Universities) Acts and Universities (Financial Assistance) Acts.

Colleges of Advanced Education

Under the provisions of a series of States Grants (Advanced Education) Acts, the first of which was passed in 1965, the Commonwealth gives financial assistance to the States for the development of colleges of advanced education. These are institutions which provide mainly tertiary education and training with a vocational emphasis, as distinct from the academic education provided by the universities. The Commonwealth Advisory Committee on Advanced Education was established in 1965 to advise the Commonwealth Government on the development of the colleges.

The grants made to a State are conditional on the provision by the State of $1 for every $1 of Commonwealth money for capital purposes, and $1.85 of State money and student fees combined for every $1 of Commonwealth money for recurrent purposes.

Teachers' Colleges

The *State Grants (Teachers Colleges) Act* 1967 provides for grants to the States during the three years to 30 June 1970 by way of financial assistance for approved building projects in connection with teachers' colleges. A condition of the grant to a State is that not less than 10 per cent of the student places attributable to the expenditure of the grant shall be available to ' private ' students, *i.e.* those who have not entered into an agreement or bond in relation to service with a State education authority for a period after completion of the course.

Pre-school Teachers' Colleges

The *States Grants (Pre-school Teachers' Colleges) Act* 1968 provides financial assistance to the States for the purposes of building projects in connection with pre-school teachers' colleges. During the three-year period ending 30 June 1971 an amount not exceeding $2·5 million is to be distributed among the States, Western Australia's share being $175,000. The amount paid to Western Australia in 1968–69 was $14,000.

Science Laboratories and Equipment

The States Grants (Science Laboratories) Acts authorise financial assistance for the provision of science laboratories and equipment for use in the teaching of science at secondary level in government and non-government schools.

School Libraries

The *States Grants (Secondary Schools Libraries) Act* 1968 provides financial assistance to the States for libraries at secondary schools and for the acquisition of library material and equipment for use in such libraries. During the three-year period ending 31 December 1971 an amount not exceeding $27 million is to be distributed among the States, Western Australia's share being $2,031,600. The amount paid to Western Australia in 1968–69 was $168,000.

Technical Training

Under the provisions of the States Grants (Technical Training) Acts, grants are made to the States as a contribution towards the cost of buildings and equipment for use in trade training and technical education in government institutions.

Research

The States Grants (Research) Acts authorise the provision of financial assistance to the States in support of research projects of particular merit, research being defined as ' systematic investigations in some branch of science or learning'. The Australian Research Grants Committee, established by the Commonwealth Government in 1965, evaluates research projects and makes recommendations concerning the selection of projects and the allocation of funds.

Financial Summary

The following table shows the amounts received during the five years to 30 June 1968 in the form of Commonwealth financial assistance for education in Western Australia.

COMMONWEALTH FINANCIAL ASSISTANCE FOR EDUCATION
WESTERN AUSTRALIA
($'000)

Purpose of assistance	1963-64	1964-65	1965-66	1966-67	1967-68
Universities—					
For capital expenditure	1,161	940	901	1,160	567
For recurrent expenditure	1,595	2,060	2,152	2,306	2,652
Total	2,756	3,000	3,053	3,466	3,219
Colleges of advanced education—					
For capital expenditure	....	....	232	457	1,304
For recurrent expenditure	....	....	....	363	776
Total	....	....	232	820	2,080
Teachers' colleges	....	....	....	....	1,817
Science laboratories and equipment	....	707	502	899	912
Technical training	....	714	269	551	1,323
Research	....	....	142	155	257
GRAND TOTAL	2,756	4,421	4,198	5,891	9,608

Chapter V—continued

Part 2—Culture and Recreation

PUBLIC LIBRARIES

The Library Board of Western Australia

The Library Board of Western Australia, which is constituted under the provisions of the *Library Board of Western Australia Act, 1951-1965*, is responsible for all forms of public library services which are financed either wholly or in part from State funds. The Board consists of thirteen members. The Director-General of Education and the Director of Adult Education are *ex officio* members. Of the remaining eleven members, who are appointed by the Governor, five represent local government interests, five are nominated by the Minister for Education and one by the Library Association of Australia, Western Australian Branch.

The Board was set up as an independent statutory body in 1952. Its functions are to encourage and assist local authorities to establish public libraries and to co-ordinate those libraries into a State-wide system, to administer funds made available by the Government for this purpose, to provide for the training of librarians and library assistants and to advise the Minister for Education and participating bodies on matters of general policy relating to libraries. Under the provisions of the *Acts Amendment (Libraries) Act, 1955*, the administration of the Public Library of Western Australia was transferred to the Board on 1 December 1955 and its name changed to The State Library of Western Australia. The Central Music Library was inaugurated in 1965.

THE LIBRARY BOARD OF WESTERN AUSTRALIA

Particulars		1963–64	1964–65	1965–66	1966–67	1967–68
Expenditure—						
Salaries and wages	$	188,514	204,860	226,200	256,914	274,556
Books, periodicals and binding	$	174,864	207,272	258,300	307,513	352,649
Other	$	40,204	40,256	46,100	49,792	65,003
Total	$	403,582	452,388	530,600	614,219	692,208
Number of—						
Staff (*a*)—						
Qualified librarians		19	19	22	24	24
Student librarians		17	19	19	16	21
Other		37	42	50	52	58
Total		73	80	91	92	103
Associated public libraries (*a*)		77	91	97	102	111
Books—						
Reference library stock—						
Bound volumes (*a*)		211,059	216,700	223,430	229,943	236,230
Periodical and serial titles received		7,192	8,966	8,417	8,266	6,368
Circulation library stock—						
Books processed for circulation		76,125	76,221	71,966	74,420	100,816
Net additions to stock		48,819	35,213	41,966	40,325	69,622
Stock at 30 June		419,253	454,466	496,432	536,757	606,379
Received and dispatched in the exchange programme with local libraries		141,158	194,482	214,872	207,352	223,864
Inter-library requests received		22,119	26,197	33,396	36,914	45,306
Central Music Library stock (*a*)—						
Number of—						
Books		....	2,561	2,954	3,200	3,665
Musical scores		....	7,901	9,435	11,032	12,723

(*a*) At 30 June.

The books in all public libraries in the State are supplied by the Board and remain its property. A fixed proportion, depending on its size, of the stock of every library is exchanged at least every two months. All books are catalogued and fully prepared for use before being issued to public libraries and the Board maintains all the central stock records.

A catalogue in book-form of the books, arranged by subjects, in all libraries is published regularly by the Board and supplied to all public libraries throughout the State. This facilitates access by library users to the whole stock of the Board, through any library. Inter-library loans both between public libraries and between other types of library in the State are organised through the Request and Information Service provided by the Bibliographical Centre. This centre, housed in the State Library building, is also available to the public. It is equipped with catalogues of the State Library and all other libraries in the service, a union catalogue of books and serials in non-public libraries in the State and a world-wide range of printed bibliographies, indexes to periodicals and subject guides.

The library service of Western Australia thus consists of the State Library, which functions as the reference division of the service, the Central Music Library, and a number of independent public libraries which are jointly supported by local authorities and the Board.

The State Library of Western Australia

The original Library was established in 1887 as the Victoria Public Library in commemoration of Queen Victoria's Golden Jubilee. It became known later as the Public Library of Western Australia and in 1955 as The State Library of Western Australia.

In addition to providing reference library facilities for the metropolitan area, its service extends throughout the State, through the agency of a local public library wherever possible but also by post direct to country inquirers not in contact with a local library.

It is divided into five specialist subject units, comprising four libraries and one centre. The J. S. Battye Library of West Australian History was developed from the former Archives Branch. All material relating to Western Australia, including the State archives, has been concentrated in this library. The other libraries are The Library of Business, Science and Technology, The Library of Social Sciences, Philosophy and Religion and The Library of Literature and the Arts. The Information Centre is equipped with current Australian and overseas telephone and trade directories, business guides, commercial publications and a wide variety of similar quick reference material. The Centre is designed principally to provide immediate answers to inquiries, mainly in the commercial field. Current newspapers, which include all those published in Western Australia, the main ones from other Australian States and a representative selection from overseas countries, are available for reference in the Information Centre.

The State Library is fully equipped with micro-film and photo-copy apparatus and copies of material are available on payment of an appropriate fee.

The Central Music Library, situated in the State Library building, lends musical scores to persons or bodies throughout the State but lends books on music only through other libraries. It also provides a reference service in the field of music.

Local Public Libraries

At 30 June 1969 there were 125 local public libraries associated with the Library Board's service. The local government authorities conducting these libraries provide accommodation and staff, while the Library Board provides all the books and bibliographical services. The administrative independence of the local libraries is secured under the provisions of the *Library Board of Western Australia Act, 1951-1965*. Apart from exercising a statutory obligation in respect of the expenditure of State subsidies, the Board takes no direct part in the administration of local public libraries. If the Board's expenditure in respect of a local library exceeds that of the local authority, an amount to equalise the expenditure is payable to the Board by the local authority. Books are pro-

vided on a minimum basis of one volume per head of the population of the district concerned and all non-fiction books in public libraries throughout the State are made available on request to the Board at any library associated with its library service.

THE WESTERN AUSTRALIAN MUSEUM

The Western Australian Museum has developed from two earlier collections. One of these, the museum of the Swan River Mechanics' Institute, was founded by public subscription in 1860, and the other, the Geological Museum at Fremantle, was started in 1881. In 1889 the contents of the Geological Museum were moved to the former Perth Gaol (which is still part of the Western Australian Museum) and a Curator was appointed in 1891. In the following year the museum of the Swan River Mechanics' Institute was purchased, and the collections combined to form the Public Museum which, in 1897, became known as the Western Australian Museum.

Under the provisions of the *Museum Act, 1969* The Western Australian Museum is governed by seven Trustees appointed by the Governor. The staff includes a Director, two Senior Curators, seven Curators and other professional and technical staff, and is grouped functionally within Divisions of Natural Science and Human Studies and a small administrative and service unit.

The work of the Museum relates mainly to natural sciences and human studies. It contains collections devoted to zoology, palaeontology, meteorites, archaeology, anthropology, history, technology and military exhibits. Emphasis in both display and research is on the fauna and the human population, past and present, of Western Australia. There is an extensive scientific library which also houses the library of the Royal Society of Western Australia. Research within the Division of Natural Sciences is related specifically to the marine fauna of Western Australian waters, mammals, birds, reptiles and insects. The Division of Human Studies is concerned with prehistoric archaeology and art, Aboriginal material culture, colonial history, maritime history, underwater archaeology, industrial and agrarian technology, and arms and armour.

The Museum is an active educational instrument. Members of the scientific staff lecture in Adult Education programmes and in the University departments. Public lectures are held and there is also an extensive programme of nature study for children. A children's centre, staffed by a Museum teacher provided by the Education Department, is open during school holidays. Children voluntarily participate in general knowledge tests and other exercises designed for vacation activities. Regular classes are held during school terms, and special visits are made by children from schools not included in the regular series.

The Museum Act specifically vests in the Museum six ships wrecked off the Western Australian coast in the 17th and 18th centuries. It also makes provision for the vesting of any other ship abandoned, wrecked or stranded before 1900 and lying in territorial waters of the State, if the Director is of the opinion that the wreck is of historical, scientific, archaeological, educational or other special national or local interest. It is further provided that every meteorite situated on land vested in the Crown shall be the property of the Museum.

A historical and maritime museum is being developed at Fremantle as a branch of The Western Australian Museum and is expected to be open to the public late in 1970.

In connection with its work of education, research and conservation, the Museum is often called upon to act in an advisory capacity to Government departments. In particular, senior staff serve on committees formed for the purpose of protection of native fauna and the preservation of Aboriginal sites and artefacts.

The Museum serves as a centre for associations with interests in natural history and human studies. The Royal Society of Western Australia and the Astronomical Society hold regular meetings at the Museum. The Museum is assisted in certain fields by Honorary Museum Associates, some of whom serve on the three Advisory Committees, the Meteorite Advisory Committee, the Historical Materials Advisory Committee, and the Fremantle Museum Advisory Committee.

THE WESTERN AUSTRALIAN MUSEUM

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Expenditure—					
Salaries and wages .... $	89,280	116,924	116,474	137,701	159,318
Other .... $	48,758	27,072	57,154	60,016	62,063
Total .... $	138,038	143,996	173,628	197,717	221,381
Square feet of—					
Display area (*a*)	14,250	16,750	16,750	16,750	(*b*) 6,832
Storage area (*a*)	11,415	11,400	11,400	11,400	11,400
Total	25,665	28,150	28,150	28,150	(*b*) 18,232
Number of—					
Staff (*a*)—					
Scientific and professional	9	9	8	11	13
Administrative and clerical	5	5	6	7	8
Other	22	24	23	25	29
Total	36	38	37	43	50
Man-days spent on field work	526	340	350	431	741
Guide lectures to school parties	360	320	320	449	351
Children attending lectures	7,379	13,032	14,000	16,752	13,272
Children's Centre school vacation attendances	42,000	37,500	39,727	35,779	32,846
Total visitors' attendances (*c*)	115,793	140,290	123,686	136,372	143,377

(*a*) At 30 June. (*b*) Temporary decrease due to building alterations. (*c*) Including attendances of school children.

THE WESTERN AUSTRALIAN ART GALLERY

The Western Australian Art Gallery is under the control of a Board of five members appointed by the Governor under the provisions of the *Art Gallery Act, 1959-1968.*

THE WESTERN AUSTRALIAN ART GALLERY

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Expenditure—					
Salaries and wages .... $	39,464	35,082	39,874	44,129	50,195
Acquisition of exhibits .... $	17,806	26,432	25,551	36,857	29,945
Special exhibitions .... $	3,772	3,416	3,719	2,662	12,090
Printing .... $	3,682	5,638	6,071	9,697	11,784
Other .... $	12,856	11,554	10,987	15,078	18,639
Total .... $	77,580	82,122	86,202	108,423	122,653
Number of—					
Staff (*a*)—					
Professional—					
Full-time	3	3	3	3	4
Honorary	2	5	5	4	4
Other	10	10	10	11	11
Total	15	18	18	18	19
Exhibits for display (*a*)—					
Oil paintings	432	438	444	455	464
Water colour paintings	186	190	194	194	194
Drawings	402	404	407	419	422
Engravings, prints, woodcuts	1,061	1,064	1,095	1,124	1,148
Sculptures	35	36	43	46	51
Ceramics	387	395	401	405	405
Jewellery, medallions, coins	800	800	800	800	804
Other	59	60	60	60	210
Total	3,362	3,387	3,444	3,503	3,698
Special exhibitions	12	20	20	12	12
Visitors' attendances	(*b*)	(*b*)	(*b*)	113,631	109,242

(*a*) At 30 June. (*b*) Not available.

The Gallery occupies part of a building shared with the Museum. The lower gallery is used mainly for lectures, art films and the display of interstate and overseas exhibitions. Works from the permanent collection are exhibited in the upper gallery, while the print

room is used to house and exhibit the collection of prints and drawings. Both displays are changed regularly. Important pieces of sculpture are on permanent display in both galleries and in an exterior courtyard designed for this purpose. Aboriginal grave and tribal posts, carvings and paintings are on permanent display in the upper gallery.

At 30 June 1968 the area available for display was 9,000 square feet, and for storage 700 square feet.

The Gallery has extended its services throughout the metropolitan area and country districts. Reproductions of paintings are circulated by means of its loan service to various public institutions, and touring exhibitions from the permanent collection are taken to country districts at regular intervals.

These activities are supplemented by publications of various kinds, which are distributed to schools and other institutions or direct to the public. Reproductions of some works in the collection are also available.

The Art Gallery operates a general information service which is widely used.

SCIENTIFIC INSTITUTIONS

State Government Observatory

The Perth Observatory was established in 1896, on the site now occupied by an administrative office building of the Western Australian Government, facing the main entrance to King's Park.

The buildings of the present Perth Observatory, near Bickley in the Darling Range, were officially opened on 30 September 1966.

The principal astronomical instrument of the Observatory is a photographic refractor of 13 inches aperture. A 16-inch reflector, constructed by the Physics Department of the University of Western Australia, has recently been installed at the Observatory.

Current work at the Observatory includes investigations of stellar motions, based on measurements of old (1900-1920) and recent photographs ; the recovery of minor planets which have been unobserved for several years ; positional observations of the brighter comets and investigations of comet orbits ; and securing photographs, to a faint magnitude limit, of significant areas of the southern sky, for future use in determinations of stellar motions.

Since late in 1967, a team of astronomers from the Hamburg (West Germany) Observatory, who brought with them a fully-automated 7-inch meridian transit circle telescope, have been carrying out a programme of observations of the positions of fundamental stars in the southern hemisphere. Staff of the Perth Observatory are now assisting in this programme and will continue similar work when the Hamburg programme is completed.

The Observatory maintains the time service for the State. It is open to visitors daily, except Saturdays, at 3 p.m. Night visits are currently arranged for groups with a specialised interest in astronomy, and night demonstrations open to the general public are expected to be resumed shortly.

State Government Chemical Laboratories

In 1922 the various chemical services of the State Government were amalgamated to form the Government Chemical Laboratories, primarily for the performance of chemical work required by Government departments. In addition, the Laboratories serve government instrumentalities and semi-government authorities and undertake some chemical work for the general public. The activities of the Laboratories are organised under six Divisions, the separate functions of which are described briefly in the following summary.

The *Agriculture and Water Supply Division* does analytical work, on soils, related principally to the experimental work of the Department of Agriculture (see also Chapter VIII, Part 1); on waters, for the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply, for primary producers seeking an assessment of the suitability of private supplies for domestic, irrigation and livestock purposes, and for commercial interests with particular reference to treatment

and corrosion; on plants, as fodders for livestock and also to assess the nutritional requirements of plants with particular reference to the use of fertilisers and the correction of trace element deficiencies; on fertilisers and manures generally; and on animal tissues for diagnostic purposes.

The *Engineering Chemistry Division* is concerned with chemical means of utilisation of mineral resources, such as production of sponge iron, upgrading of ilmenite and of low grade ores, and the beneficiation and calcination of lime sand. The Division was associated with the Fuel Technology Division in the production of a metallurgical fuel from Collie coal.

The *Food, Drugs, Toxicology and Industrial Hygiene Division* deals with the analysis of foods, including milk; drugs; police work, including human and animal toxicological examinations for poisons and analysis of blood and urine for alcohol concentration; industrial hygiene, including determinations relating to the amount of potentially harmful substances present in industrial and commercial materials or associated with working conditions; and industrial effluents and pollution surveys of river and ocean waters.

The *Fuel Technology Division* has been primarily concerned with Collie coal and its uses and has done important work on this local coal for the making of coked briquettes as a metallurgical fuel and for the production of town gas. The Division's investigations have extended to other fuels, including sawdust and woodwaste, and also to domestic appliances using fuel, and reduction of atmospheric pollution by emission from smokestacks.

The *Industrial Chemistry Division* is used extensively as a source of information and advice on technical problems relating to industry in Western Australia, with special reference to plastics. Research is also in progress on protective coatings, including paint.

The *Mineralogy, Mineral Technology and Geochemistry Division* is basically concerned with minerals, their occurrence and identification, but it also carries out the testing of clays and of aggregates for cement and concrete work, as well as corrosion and other tests. Analyses are done for the Geological Survey Branch of the Department of Mines in connection with mineral surveys, notably those for copper and iron. This Division is also the reference laboratory for analyses of crushings of gold ores by the State Batteries. An important part of its work is the identification of mineral specimens forwarded by prospectors and others and the Division deals with many hundreds of such samples every year.

Details of the operations of the Government Chemical Laboratories are published in the Annual Report of the Director.

The Institute of Agriculture, University of Western Australia

The Institute of Agriculture was established in 1938 within the University to provide research facilities and staff essential for the effective training of professional agricultural scientists at both undergraduate and graduate levels. It includes the teaching and examining Faculty of Agriculture, and the research staff associated with it. Although the Institute is financed to some extent from University funds, substantial research grants from producer organisations and other bodies and individuals interested in the promotion of agriculture have made possible most of the research that has been undertaken since its establishment.

During the first ten years of its existence, and despite the dislocation of the war years, it initiated research on plant and animal problems of the pastoral areas, commenced a series of fundamental studies related to the nutrition of ruminants, investigated factors affecting the baking quality and nutritive value of wheat and flour, elucidated factors affecting the fertility of sheep, and carried out a series of economic surveys of the sheep, wheat, dairying, pig, and poultry industries. The work of these years is summarised in the report of the Director, published in 1949.

Since 1948 the research programmes have been greatly increased and their scope widened. Plant breeding, selection and genetical research aimed at increasing the productivity and extending the climatic limits of crops and pasture legumes, especially subterranean clovers, medics and lupins, was strongly developed and fundamental studies initiated on the nutritional physiology and microbiology of the wool sheep with particular reference to the factors influencing the utilisation of protein, of urea and of low-quality roughages. The agronomic research has been expanded to include cereal genetics studies, and the animal research to include nutritional studies with beef cattle. In recent years studies in mineral metabolism, especially sulphur, phosphorus, cobalt and zinc, have been initiated.

Further and more detailed economic surveys of the wheat-sheep farming industry and of the butter-fat producing and whole-milk producing industries have been carried out, together with studies of the comparative advantages of forestry and agriculture in parts of the south-west of Western Australia, and studies of egg-marketing problems. In 1961 the John Thomson Agricultural Economics Centre was set up within the Institute with funds supplied by banks, business houses and other organisations. The research economists of this Centre have completed an economic appraisal of irrigation from the Gascoyne River, an inter-industry comparison of the economy of Western Australia, and an investigation of farm population and land development potential in Western Australia. In 1967 a Farm Management Service Laboratory was set up as a service to farmers.

In 1963 a Department of Soil Science and Plant Nutrition was established within the Institute with a very strong research group engaged in studies of soil physics, soil chemistry, soil microbiology and plant nutrition. The soil microbiology workers are mainly concerned with a continuation of earlier research into nodulation problems in legumes and the nitrogen-fixing process. The plant nutrition group has devoted particular attention to the uptake by crop and pasture plants of mineral nutrients, especially potassium, phosphorus, copper, zinc and manganese. The soil chemistry workers are specially concerned with the chemistry of soil organic matter, and the soil physics group with the role of the clay minerals in soil, with soil water, and the movement and retention of soil phosphorus and sulphur.

In 1966 a Department of Agronomy was established within the Institute. The research activities of the staff of this Department include the work in plant breeding mentioned previously and have been expanded to cover investigations into plant-water relations and agricultural climatology.

This brief review of the very wide range of the research activities of the Institute of Agriculture, at both the fundamental and at the more applied level, illustrates the extent to which it contributes to the assistance and service of the rural industries, indirectly by its training of agricultural scientists and directly through its manifold research projects.

Commonwealth Scientific and Industrial Research Organization

Several Divisions of the Commonwealth Scientific and Industrial Research Organization are actively engaged in research work in Western Australia.

Division of Soils. For some years the Division of Soils has been concerned with soil surveys in many parts of the agricultural areas. While these surveys have been carried out mainly in existing agricultural areas or in new areas proposed for development, they have also been used to build up a picture of the soils and landscapes of the whole State. This work is the basis of part of a recently published *Atlas of Australian Soils.*

These field projects involve the study of the extremely highly-weathered mantles and superficial deposits on which the soils are formed. These bodies of material also constitute the aquifers in which water moves in the landscape and provide a basis for investigations into hydrology and soil salinity in the agricultural areas, initially in the wheat belt but more recently in the higher-rainfall areas.

An important part of the work of the Division concerns the problem of the nutrition of exotic pines on the lateritic soils of the Darling Scarp and the infertile sands of the Coastal Plain. Yield responses of wheat to fertiliser treatments in relation to soil and other environmental factors are under investigation at a large number of sites throughout the agricultural areas. This has necessitated the development of automated systems for chemical analysis of soil and plant material.

Division of Plant Industry. The Division of the Plant Industry in Western Australia has continued its research in pasture production and in animal production from pastoral systems. In addition, studies are being developed in crop and animal production in ley farming systems because of the need for increased diversification of agricultural production particularly in the high-rainfall areas.

Increased pasture production is being sought by the introduction of new pasture species or strains, or by removing the limitations placed on the value of existing pastures by nutrient deficiencies, toxicities and imbalances.

In pastoral agronomy the conversion of plant material into animal products is being studied with the aim of increasing the efficiency of animal production. In ley agronomy, problems of crop production are being studied in addition, and relative to, the pastoral agronomy aim of increasing animal production. Research in both pastoral agronomy and ley agronomy is orientated towards the better understanding of all the factors involved in pasture, crop and animal production and of their relative importance in agricultural systems.

A special feature of the Division's programme in Western Australia is the research on the deep sands of the Swan Coastal Plain. At present much of this area of some 3 million acres has a low level of agricultural production, but there are large volumes of underground water available and a programme of irrigation research has been undertaken. Initial results with both crops and pastures indicate a very high potential productivity. Both dryland and irrigation research are being increased because of future possibilities of intensive agriculture in this area.

Division of Entomology. The study of the ecology and biological control of the pasture pests, Red-legged Earth Mite and Lucerne Flea, is continuing. The introduced mite, *Anystis* sp. *A.*, a predator of the two pests, is now established. However, the extent of its effect is not yet known. Attempts are being made to establish in Western Australia a bdellid mite, *Neomolgus* sp., a predator of the Lucerne Flea. The mite was collected in Morocco and sent to Australia early in 1969.

Jarrah Leaf Miner caused widespread damage to jarrah and flood gum in 1967. It appears that its control by aerial spraying with systemic insecticide is not feasible. The general biology of the leaf miner and methods of sampling of leaves and forest litter are being studied.

Work has commenced on an ecological study of San Jose Scale, a pest of apples. Comprehensive surveys of the incidence and injuriousness of apple pests throughout the South-West are being planned.

Division of Mathematical Statistics. Officers of the Division of Mathematical Statistics are currently investigating the application of statistical methods to special problems of local interest in the fields of the applied and biological sciences. In addition, they act in an advisory capacity to other research workers in the State on matters relating to the design of experiments and the analysis and interpretation of data.

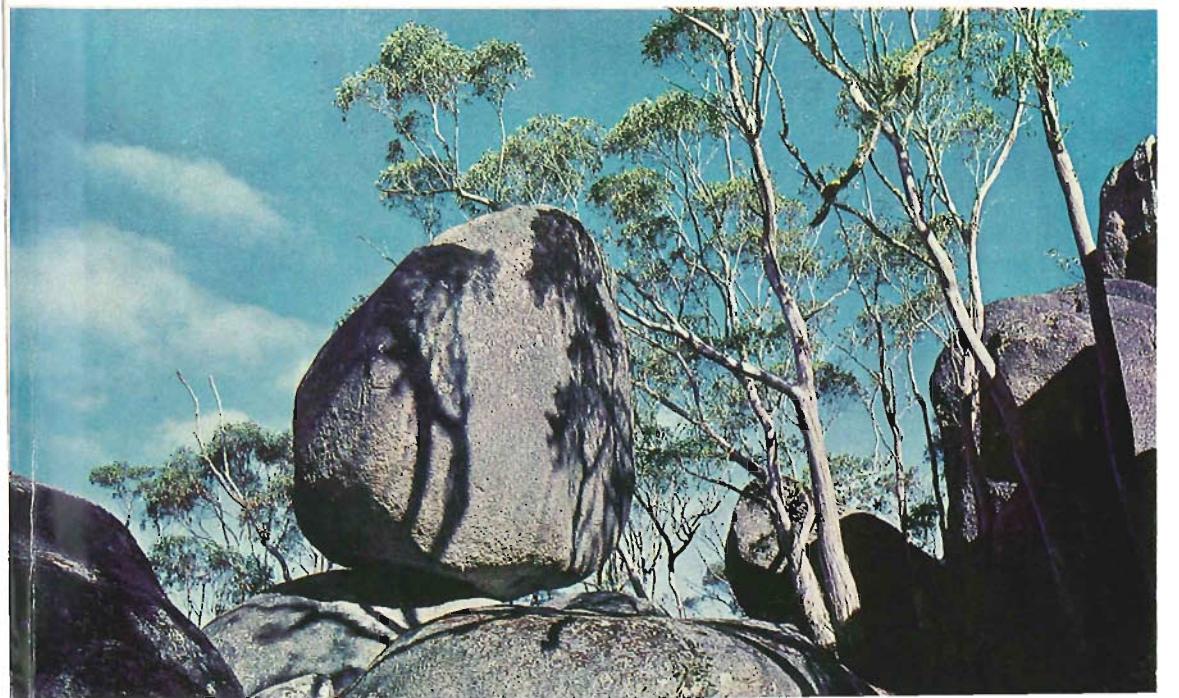
Division of Computing Research. A branch of the Division of Computing Research was opened in Perth in 1968. Its function is to provide a computing service for research workers in other Divisions. A small computer connected to the University of Western Australia's computer, a line printer, a card reader, a paper-tape reader and paper-tape punch have been installed at the Organization's Laboratories.



Above—The boating lake in the children's nature playground in The King's Park

Below—The Balancing Rock, Porongurup National Park

Block by courtesy of the National Parks Board of Western Australia



Division of Applied Mineralogy. The laboratory of the Division of Applied Mineralogy is concerned mainly with research having a bearing on the mineral industry. The main theme of the laboratory's work is concerned with the elucidation of the chemical and physical nature of the geological processes of mineral formation and alteration. This work is directed towards helping to meet the special challenge of mineral exploration in inland areas, where rock outcrop is scarce and so much of the geology is obscured by the ubiquitous soil cover. Studies are in progress on processes of ore genesis, on the haloes of alteration around ore bodies and on possible methods of recognising indicators of ore bodies that can survive the process of weathering.

The laboratory, in addition, is acting as a link between manufacturing industry in Western Australia and physical, chemical and metallurgical divisions of the Commonwealth Scientific and Industrial Research Organization.

Division of Wildlife Research. The Division of Wildlife Research, located at Helena Valley, is concerned with investigations on the higher vertebrates (more particularly mammals and birds) and these cover not only species of economic importance but the native fauna generally. The Division played a part, in association with the Department of Agriculture, in the control of rabbits by the introduction of the disease myxomatosis, and carried out a basic research project on the control of the Euro (a species of kangaroo) in the Pilbara district.

Among birds, studies of the ecology of the Emu, the Wedge-tailed Eagle in the pastoral zone, the White-tailed Black Cockatoo, the Noisy Scrub-bird, and the Galah are proceeding. Other current projects include experimental and field studies on the factors controlling breeding seasons of birds under Western Australian conditions. The Division organises the Australian Bird-Banding Scheme.

Division of Fisheries and Oceanography. The Division of Fisheries and Oceanography has supplied the project leader for the Western Fisheries Research Project set up co-operatively by the Commonwealth Scientific and Industrial Research Organization, the Department of Primary Industry, the State fisheries authorities of Western Australia and South Australia, the Zoology Department of the University of Western Australia, and The Western Australian Museum. At present, the research includes work on rock lobsters (crayfish) marron, prawns, tuna, whiting, trout and whales and also on marine sedimentation, Haliotids (abalone), and the development of a sonic buoy for automatic collection of hydrological data. Officers of the Division are stationed at Perth to participate in the research on rock lobsters. Using a naval frigate and a research vessel of the Western Australian Department of Fisheries and Fauna, the Division is continuing work on the physico-chemical and biological oceanography of the eastern Indian Ocean. The Division has helped to equip and staff a fisheries research laboratory built by the Government of Western Australia on the coast near Perth and opened in October 1968.

Division of Soil Mechanics. The Division of Soil Mechanics is the most recently established member of the Western Australian laboratories.

One of the prime reasons for opening a section in Perth was to undertake a geotechnical survey of the occurrences and the foundation characteristics of the Perth metropolitan area and to logically co-ordinate the presentation of this data.

Other more specific projects, already under way, are firstly, the analysis and instrumentation of pressure and settlement characteristics of the Reserve Bank in Perth (this work is being carried out in conjunction with the Commonwealth Department of Works), and secondly, a study of the general problem of the settlement of sands under static and transient loads.

Other Activities. Besides the research work being conducted at Perth and associated field stations, various co-operative programmes are under way in University departments and in the Western Australian Department of Agriculture. The Commonwealth Scientific and Industrial Research Organization has several officers stationed at the Kimberley Research Station investigating the crop and pasture problems of the northern areas.

Department of Agriculture

Reference to the scientific work of the Department of Agriculture appears in the section *The Department of Agriculture* in Chapter VIII, Part 1—*Primary Production.*

BOTANIC GARDEN

The Botanic Garden was established in King's Park in 1962 and is under the control of the King's Park Board (see following section *Public Parks and Reserves*). The Botanic Garden is the counterpart of The Western Australian Museum in the botanical field, maintaining living collections of plants for scientific and educational purposes. Its official objects are to foster public interest in the conservation and cultivation of the Western Australian flora; to contribute to public education in this field; to become a centre for botanical and horticultural research in the flora of Western Australia; to provide a major tourist attraction; and to foster generally interest in botany and horticulture over the whole field of the plant kingdom.

The cultivated areas of the Garden, which was officially opened in October 1965, cover a total of sixty-seven acres, made up of the Western Australian collection (twenty-five acres), a Californian, South African and Mediterranean collection (six acres), and an arboretum of Western Australian native trees (thirty-six acres). The Western Australian collection at present comprises 1,200 species. Virtually all trees native to the southern half of the State, with the exception of some rare mallees, are represented in the aboretum.

Parties from the Botanic Garden are regularly in the field for the collection of propagating material, and contribute to the botanical exploration of the State. Special attention is devoted to locating rare species or species threatened with extinction. Vegetation maps of the State are being built up. Seed of native plants collected is distributed to botanical institutions throughout the world and to private growers and nurserymen. A seed list, which normally offers from 900 to 1,000 species, is published annually, and about 8,000 packets of seed are distributed each year.

Research on propagation of native plants is carried on in the nursery, and information acquired is passed on to growers through State branches of the Society for Growing Australian Plants, using the medium of the Society's Journal. Within Western Australia, members of the staff constantly lecture and demonstrate and the nursery is opened to conducted parties at regular intervals. Official guides to the Botanic Garden may be engaged by parties of visitors. There is a nature trail for children in the Park bushland used regularly by the Gould League, and as the Botanic Garden develops it is designed to become of value for nature study groups. A Wildflower Exhibition is held in the Park each spring. Facilities are provided for the employment and ancillary training of students enrolled in the three-year course for the Western Australian Certificate of Horticulture and Park Administration.

PUBLIC PARKS AND RESERVES

It is within the power of the Governor to dispose of, in any manner which serves the public interest, lands which are vested in the Crown and, in terms of this authority, Crown land is frequently reserved by order of the Governor for a variety of public purposes. Some of this land is reserved for public recreation and amusement, national and other public parks, or flora and fauna sanctuaries and the reserves are controlled by statutory bodies, the more important of which are dealt with in this section.

Further reference to reserves will be found in the section *Conservation of the Flora* in Part 3 of Chapter II.

The *National Parks Board of Western Australia* controlled eighteen National Parks and a number of other reserves at 30 June 1969, totalling in all about 843,449 acres in area. National Parks vested in the Board at that date comprised Kalbarri (358,000 acres) located a few miles east of the mouth of the Murchison River; Stirling Range (285,874 acres) north of Albany; Nambung (39,991 acres) near Cervantes; Cape Le Grande (39,500 acres)

on the south coast east of Esperance; Cape Range (33,171 acres) near Exmouth; Walpole-Nornalup (33,012 acres) on the south coast west of Denmark; Yalgorup (9,850 acres) south of Mandurah; Torndirrup (8,911 acres) south-west of Albany; Geikie Gorge (7,750 acres) near Fitzroy Crossing in the North West; Yanchep (6,840 acres) near the coast about thirty miles north of Perth; Porongurup (5,531 acres) near Mount Barker; Walyunga (4,000 acres) in the Darling Range foothills about twenty miles north of Perth; John Forrest (3,914 acres) near Glen Forrest in the Darling Range; Neerabup (2,785 acres) north of Wanneroo; Serpentine (1,571) acres); Kalamunda (919 acres); Greenmount (127 acres); and Lesmurdie Falls (81 acres) in the Darling Range near Perth. At the same date, other reserves vested in the Board included Yanchep Flora Reserves (439 acres); Hamelin Bay Reserve (366 acres) on the west coast near Cape Leeuwin; Nowergup Lake Fauna Sanctuary (288 acres); Walpole Flora Reserve (228 acres); Albany Boronia Reserve (112 acres); Matilda Bay Reserve (51 acres) on the Swan River near Perth; Araluen-Canning Dam Reserve (50 acres); Penguin Island Reserve (31 acres); and East Perth Cemetery Reserve (12 acres), a disused burial ground containing the remains of early pioneers. Flora and fauna are protected and firearms prohibited in all National Parks and Reserves controlled by the Board. Picnic and recreational facilities have been provided where necessary in the parks and reserves, while camping and caravan facilities are available in a few of them.

The *Emu Point (Albany) Reserve Board* controls a reserve containing an area of approximately 1,120 acres at Emu Point near Albany, which has been developed for recreation, camping and residential purposes. Two camping and caravan parks and a modern motel provide accommodation. A small boat harbour has been dredged and pen facilities to accommodate sixty boats constructed. An additional dredged area, without constructed pens, is provided so that large professional fishing boats might use ground moorings.

The King's Park Board administers an area of almost 1,000 acres close to the centre of Perth. Part of this area was dedicated in 1872 ' for the purpose of a public park and recreation ground ' and was enlarged in 1890. Beautification commenced in 1896 under the presidency of Sir John Forrest, and the name was changed in 1901 from Perth Park to The King's Park in honour of the accession of King Edward VII. In addition to its original function as park and recreation ground, The King's Park has over the years gradually developed two other important functions, as a National Shrine and as a Botanical Reserve. In the former case it houses the State's most important monuments and commemorative features of a military and historical nature. A memorial to the South African war was built in 1901, and the State War Memorial to the fallen of both world wars was erected on a commanding position on Mount Eliza in 1929 and extended in 1952. ' Honour Avenues ' of trees dedicated to individual fallen servicemen were planted in 1919 and later, and another avenue commemorates the State Centenary of 1929. There are numerous smaller memorials erected by individual regiments or other military units, and a number of monuments to important historical personages.

The concept of the botanical reserve grew from the fact that four-fifths of the Park's area remained undeveloped under a natural bushland which contained many native wildflowers. Increasing urbanisation and the elimination of natural sites in and close to Perth made the retention of this bushland area a matter of scientific and aesthetic value. This function was strengthened from 1962 onwards by the establishment in the Park of a botanic garden and aboretum of sixty-seven acres for the cultivation and display of Western Australian native plants. (See preceding section *Botanic Garden.*)

Recent developments have not neglected the Park's original aesthetic and recreational functions. Facilities exist for playing tennis, bowls and hockey. A fully-equipped modern restaurant was erected in 1956, close to which are tourist attractions including a floral clock, a wishing well and a giant Karri log. There are two public barbecue sites and many miles of pedestrian paths and tracks. The original fifty acres of lawns and shrubberies have been materially extended by the Botanic Garden area. Four new lawns have been added, one of which encircles a landscaped water garden with four pools, two cascades and a waterfall, one pool featuring an illuminated fountain dedicated to the pioneer women of the State. In addition to this, a new picnic lawn and children's nature

playground have been established around an artificial lake at the western end of the park and linked to older-developed areas by a mile-long vista dominated by a steel viewing tower of unusual design.

The *Zoological Gardens Board* administers the Zoological Gardens at South Perth, an area of forty-four acres of animal enclosures, cages, lawns and gardens. The Zoological Gardens were established in October 1898 for the collection and display of mammals, birds, reptiles and fish from all parts of the world, but specialising in Australian, and particularly Western Australian, fauna. During the year ended 30 June 1969, 92 species of mammals, 200 species of birds and 34 species of reptiles were exhibited. In this period 368,410 people paid for admission and, in addition, 3,475 disadvantaged children and adults were admitted free.

The *Rottnest Island Board* administers as a tourist and holiday resort a reserve comprising almost the whole of Rottnest Island, which is situated about ten miles west of Fremantle. The settlement at Thompsons Bay contains cottages and bungalows to let, a hotel, lodge, camping area and all services. Recreational facilities include a golf course, tennis courts, bowling green and a riding school. The coastline is ringed by a road system with access to the various swimming and fishing areas. There is a land-backed wharf and three jetties in Thompsons Bay and jetties at Geordie Bay and Green Island. Special features of the island include the marsupial known as the Quokka and the Rottnest Island Daisy. The Island is served regularly by air and sea transport.

Caves Reserves. Extensive limestone caves have been discovered at several places in the south-west part of the State. Some of them, between Cape Naturaliste and Cape Leeuwin and at Yanchep, have been developed for public inspection and certain areas of the surrounding land have been reserved, notably at Yanchep, Yallingup, Margaret River and Augusta.

Local Government Reserves. Many local authorities hold land for recreational purposes, the areas having been either Crown land vested in the Council, acquired by way of purchase, or received under private bequest. Included in these local government reserves are areas required to be surrendered to the Crown by private owners, when subdividing land into residential lots in order to provide recreation areas for the holders of lots in the subdivision. The reserves are frequently developed as public parks or to provide facilities for sports or camping.

The State National Fitness Council controls reserves, principally for youth activities, at Point Peron on the coast south of Fremantle, at Sorrento (under development) to the north, and at Bickley in the Darling Range.

SPORTING ORGANISATIONS

The following letterpress provides a general view of most sporting organisations active in Western Australia. The State National Fitness Council, constituted under the *National Fitness Act, 1945-1959*, is the governmental authority responsible for community service and recreational activities. The principal functions of the Council, as exercised through a series of committees, are the co-ordination of amateur sport and the sports education of young people; the conduct of camps and training of leaders; the organisation of facilities in all parts of the State for sport and recreation; and the provision of free meeting places, office assistance, a typing and duplicating service, and other facilities for voluntary organisations and sports groups.

ANGLING. Organised angling in Western Australia began in 1950 with the formation of the Dry Casting and Angling Association, which was re-formed in 1956 as the Surf Casting and Angling Club. Since that time other surf-fishing clubs have been formed and there are several boat-fishing clubs throughout the State. Trout angling is growing in popularity in the South-West and game-fishing clubs have been formed in Perth and the North-West. The representative body of all Western Australian anglers is the Australian Anglers Association (W.A. Division).

ARCHERY. The Archery Society of Western Australia was established in 1938, consisting initially of one small club. There are now five metropolitan clubs and seven country clubs with a total membership of about 200.

ATHLETICS. The W.A. Amateur Athletic Association was formed in 1928 and the Western Australian Women's Athletic Association was established in 1936. Perry Lakes Stadium, which was built as a venue for athletics events of the British Empire and Commonwealth Games held at Perth in 1962, is the headquarters for amateur athletics in Western Australia and the location for the annual State Athletic Championships held in February or March.

BADMINTON. The Badminton Association of W.A. is comprised of some 1,250 members, and is centred at a headquarters building in Perth, with five courts, which was completed in 1964. Five major tournaments in Perth, several country tournaments and other competition series are conducted during the March-October season each year.

BASEBALL. Competitive baseball began in Western Australia in 1936, with six teams participating, and in the same year the West Australian Baseball League was formed. By 1969 ten clubs were registered with the League, comprising twenty-six teams and, in addition, there were thirty junior teams fielded by nine clubs. There are approximately 340 senior and 380 junior playing members.

BASKET BALL. Women's basket ball in this State had its beginning with the formation of the Perth Association in 1924. The name was changed to the Western Australian Women's Basket Ball Association about 1928. There are some 1,800 teams in competition, comprising about 14,400 players. Night basket ball is also played under the control of the W.A. Women's Night Basket Ball Association.

CHESS. In 1957 the Chess Association of W.A. was formed and this body conducts all organised senior chess activities throughout the State. There are fifteen registered clubs and the approximate number of registered players is 300. In addition, a Junior Chess Council conducts primary and secondary school competitions.

CLAY TARGET SHOOTING. Organised clay target shooting commenced in the early 1930s. There are now eighteen clubs, comprising some 500 registered shooters, throughout the State.

CRICKET. The Western Australian Cricket Association, comprised of clubs in Perth and nearby districts, was formed in 1885. The Association is the controlling body of cricket in this State. It conducts a district competition in four grades in which sixty teams participate, and a competition for players under sixteen years of age for thirty-two teams. Affiliated associations in the metropolitan and country areas comprise some thousands of players.

The Western Australian Women's Cricket Association was formed in 1930 and there are now six senior clubs in competition. A schoolgirls' competition was commenced in 1965.

CROQUET. The West Australian Croquet Association was formed in 1907. The Association is now comprised of eighteen metropolitan and thirteen country clubs and 820 playing members.

FOOTBALL. The first football club, known as 'Swans', was formed in 1883. The West Australian Football Association was established in 1885, and is now known as The Western Australian National Football League (Inc.) with headquarters at Subiaco Oval. By 1890, Fremantle, West Perth, Mines Rovers and East Perth were recognised as the four leading clubs. East Fremantle club was formed in 1898, South Fremantle in 1900, Rovers became Perth in 1899, and Subiaco entered the competition in 1901. The Claremont-Cottesloe club (now Claremont) was admitted to the League in 1926, and in 1934 the Swan Districts club joined the League.

There are now twenty-seven affiliated bodies of The Western Australian National Football League and more than 70,000 players throughout the State in regular football competitions. Spectator attendance at League games in Perth during the 1969 season totalled 930,653.

GOLF. The Perth Golf Club was founded in 1895 with headquarters on Burswood Island. The Western Australian Golf Club was formed in 1921 by the Perth, Fremantle (now Royal Fremantle) and Cottesloe (now Sea View) clubs. In 1969 there were 161 country clubs with 8,200 members, nine metropolitan clubs with 3,900 members and four suburban clubs with 1,300 members affiliated with the Western Australian Golf Association.

The Western Australian Ladies' Golf Union was formed in 1914 by the Perth, Fremantle and Cottesloe clubs. Throughout the State 178 clubs are now affiliated with the Union and there are 7,500 associates with Ladies' Golf Union handicaps.

GUN DOGS. The Gun Dog Club of W.A. was formed prior to the Second World War mainly for the purpose of showing dogs for competition. The principal interest of the club is now in training dogs in obedience and retrieving. Membership of the club is around 250.

HOCKEY. Men's hockey was first played on an organised basis in Western Australia in the early 1920s. By 1969 there were 220 metropolitan teams and eighty schoolboy teams comprising some 5,500 members. In addition there is a public schools competition as well as many country hockey teams. Western Australia has won more Australian Championships than any other State, being successful in 1956, 1958, in each year from 1960 to 1967, and in 1969.

The Western Australian Women's Hockey Association, formed in 1916, now has fifty affiliated clubs in the metropolitan area, with a membership of about 2,000. There are also clubs in many country centres, and regular competitions between schools.

HORSE RACING. The Western Australian Turf Club was formed in 1852, and in 1892 The Western Australian Turf Club Act officially constituted the Club and conferred upon it powers to control the sport throughout the State. Ascot Racecourse is the headquarters of Western Australian racing and Belmont Park is the ' winter ' course. Average attendance at Ascot is about 11,000 persons and at Belmont Park, 8,000. Stake money totalled $798,000 in 1968-69, compared with $317,050 in 1959-60. Racing is conducted by fifty-two country clubs in addition to meetings at Ascot and Belmont Park.

LACROSSE. Men's lacrosse in Western Australia was established with the formation of the Perth and Fremantle clubs in 1896. There are now eight clubs involving over 500 players in competition. Women's lacrosse was established in 1965 and the competition involves six clubs and 120 players.

LAWN BOWLS. Lawn bowls has been played in this State since 1895 when the first green was opened at Perth. The Western Australian Bowling Association was formed in 1898 by the Perth, Fremantle and Guildford (now known as ' Swan ') clubs. At the end of the 1968-69 season 169 men's clubs with a membership of 16,961 were affiliated with the Association.

The Western Australian Ladies' Bowling Association was formed in 1935. The Association now has 163 affiliated clubs with a membership of 10,314. Most clubs in the State admit both men and women and there are only two clubs which are restricted to women members.

MARCHING GIRLS. The Association of Westralian Marching Girls was formed in 1954 with five teams in competition. Forty teams, with approximately 500 members, are now registered.

PARAPLEGIC SPORT. Paraplegic sport is administered by the Paraplegic Sporting Committee, which is a sub-committee of the Paraplegic Association of Western Australia. The first paraplegic sports meeting in Australia was held at Shenton Park Annexe of the Royal Perth Hospital in 1955. Team members compete in such sports as basket ball, weight-lifting, swimming, table tennis, archery, and track and field events.

PISTOL SHOOTING. The West Australian Pistol Association was formed in 1959 by the Fremantle and Perth Pistol Clubs. The Association now comprises thirty-eight metropolitan and country pistol clubs with a membership of about 1,000 persons.

RIFLE SHOOTING. Civilian rifle clubs were first established in 1901 and in that year two Associations were formed known as The National Rifle Association of W.A. Coastal Division and the National Rifle Association of W.A. Goldfields Division. Both Divisions amalgamated in 1910 and became The National Rifle Association of Western Australia. From 1901 to 1965 the rifle club movement was administered by the Department of the Army and club membership in most years varied between 5,000 and 6,000. Since withdrawal of a Commonwealth subsidy payable until 30 June 1965, membership has been some 2,000 in ten registered clubs. The Association is now known as the West Australian Rifle Association.

ROWING. Organised rowing in Western Australia commenced in 1868. There are now eight metropolitan and two country clubs affiliated with the Amateur Rowing Association as well as three associate school clubs. The clubs have an active membership of 450 oarsmen.

RUGBY. The W.A. Rugby Union was formally constituted in 1893 but, due to lack of support, activities were suspended in 1905. The sport was revived in 1928. In 1969 there were twelve clubs affiliated and almost 1,100 players registered with the Union. The W.A. Junior Rugby Union conducts an under-age competition, in which thirty-eight teams compete.

The Western Australian Rugby Football League was formed in 1948. There are nine league clubs and some 1,700 senior and junior players.

SOCCER. Organised soccer in Western Australia commenced in the 1890s when the W.A. British Football Association was formed. Subsequently the name was changed to The Western Australia Soccer Football Association. The Association controlled the sport in this State until the early 1960s when the Soccer Federation of W.A. was formed. In 1969 the Federation consisted of twenty-eight metropolitan clubs (ten of which form the State League), fourteen amateur clubs, five affiliated country associations and a junior organisation. The State record attendance for a soccer match was established in 1967 when 20,600 spectators watched the match between Western Australia and the English champions, Manchester United.

SOFTBALL. The Western Australian Women's Softball Association was formed in 1947. In 1969 there were sixty-six teams in competition compared with three in 1947, a record 72 clubs competing in 1952 when the Australian Championships were staged in Perth.

SQUASH. Squash rackets (or 'squash ') commenced in Western Australia in 1938. The Squash Rackets Association of W.A. was constituted in 1951, three clubs being affiliated. In 1969 there were fourteen clubs affiliated with the Association and 935 players were registered.

SURF LIFE SAVING. The Surf Life Saving Association of Australia was established in 1907, and the Western Australian State Centre Incorporated was formed in 1925. The first club established in Western Australia was the Cottesloe Surf Life Saving Club in 1909. In 1968-69 there were twelve metropolitan and five country clubs with a membership of 1,444 persons. Since 1926, 5,481 people have been rescued and 19,888 first aid cases treated. During 1968-69, 306 rescues were made and 1,412 first aid cases treated.

TABLE TENNIS. The Western Australian Table Tennis Association was formed in the 1930s. There are sixteen registered clubs in the Perth area and a number of country clubs, with a total membership of about 500.

TENNIS. The first State Tennis Championship was held in 1895 and the Western Australian Lawn Tennis Association was formed in 1903. In addition to the hundreds of private, municipal, church and school tennis courts throughout the State, there are thirty-seven metropolitan clubs and eighty-two country clubs affiliated with the Association. Total membership is some 10,000 players.

TROTTING. Trotting in this State is administered by the Western Australian Trotting Association, constituted under the *Western Australian Trotting Association Act, 1946-1948.*

The Association is the controlling body for two metropolitan clubs conducting meetings at Gloucester Park (Perth) and Richmond Raceway (Fremantle), and nineteen country trotting clubs. Stake money in the 1968-69 season totalled $531,141.

WEIGHTLIFTING. The Western Australian Amateur Weightlifters' Association controls weightlifting and associated activities in the State and approximately seventy members are registered.

YACHTING. Organised yachting commenced in Western Australia in the 1860s with the formation of two clubs now known as Royal Perth Yacht Club and Royal Freshwater Bay Yacht Club. There are now eleven metropolitan clubs, ten country clubs and some thousands of pleasure and competition craft in the State.

Chapter V—continued

Part 3—Health Services, Hospitals, and Care of the Aged and Disabled

HEALTH SERVICES

Health Administration

The Commonwealth and State Government health authorities, together with Boards of Health under local government administration, co-operate in maintaining health services and in the prevention and control of infectious diseases in Western Australia.

The Department of Health (Commonwealth) is administered, subject to the Minister, by a Director-General of Health. In each State there is a Director of Health responsible to the Director-General. Among the principal functions of the Department is the management of the National Health Services provided under the National Health Act. Information relating to these Services appears in Part 5 of this Chapter.

The Department controls the Australian Quarantine Service for the quarantine of humans, animals and plants. Human quarantine is concerned primarily with the procedures necessary to exclude quarantinable diseases, namely smallpox, plague, cholera, yellow fever, typhus fever, leprosy, and such other diseases as may be declared under the Quarantine Act. Animal quarantine regulates the importation of animals and animal products from overseas, and plant quarantine the importation of all plants and plant products, with the object of excluding plant diseases, insect pests and weeds. In respect of interstate movements of animals and plants, the Quarantine Act becomes operative only when it is considered that Commonwealth action is necessary for the protection of any State or States, and in general the control of interstate movements of animals and plants is the responsibility of State Governments.

The Commonwealth Acoustic Laboratories, of which there is a branch in Perth, provide and maintain, without charge, hearing aids for persons under twenty-one years of age and those entitled to benefits under the Repatriation Act. From 1 April 1968 this service has been available, on payment of a nominal fee, to persons enrolled in the Pensioner Medical Service and their dependants. Reference to the Pensioner Medical Service is made in the section *Medical Benefits* in Part 5 of this Chapter.

The principal Statute relating to the provision and regulation of health services in Western Australia is the *Health Act, 1911-1968* which is administered, subject to the control of the Minister, by a Commissioner of Public Health. The Act is comprehensive in scope and confers on the Commissioner the powers necessary for the prevention and control of infectious diseases; the enforcement of sanitation, building and pure foods standards; the control of nuisances and offensive trades; the regulation of the sale of pesticides and the manufacture of therapeutic substances; and the registration of private hospitals and the licensing of maternity homes. Other Acts under Public Health administration are the Anatomy Act, the Clean Air Act, the Cremation Act, the Poisons Act and the Radioactive Substances Act.

The Health Education Council is established as a statutory body under the provisions of the *Health Education Council Act, 1958-1961.* The Council conducts publicity campaigns and public lectures on matters affecting public health, including home accidents, handling of poisons, poliomyelitis and diphtheria immunisation and the control of flies and mosquitoes.

The Cancer Council of Western Australia is constituted under the provisions of the *Cancer Council of Western Australia Act, 1958-1964* as a statutory body with the functions of co-ordinating, promoting and subsidising research into the cause, diagnosis, prevention and treatment of cancer.

The Department of Public Health has a central laboratory housed in the Sir Charles Gairdner Hospital at Hollywood. At 31 December 1968 there were twenty-five branch laboratories, nineteen of which were located at country centres. The principal activity of the laboratories is the examination of medical and public health specimens, but there is increasing emphasis on research, particularly in the fields of virology, salmonellosis, tuberculosis, unclassified mycobacteria, cytology and coronary disease.

Infectious Diseases

The *Health Act, 1911-1968* provides for the compulsory notification of infectious diseases and for the application of preventive measures. For the purposes of the Act, infectious diseases are those which are specified in the Act, as well as any other diseases which may, from time to time, be declared. The occupier of premises where such a disease occurs is required to notify the local authority forthwith. The medical practitioner who attends a person suffering from an infectious disease must, on the day on which he becomes aware of the nature of the disease, notify the occupier and also the local authority and the Commissioner of Public Health.

On the appearance of any epidemic, endemic or contagious disease, the local authority is required to notify the Commissioner immediately and to report periodically on the disease. The Act provides for the disinfection and cleansing of premises and for the disinfection and destruction of bedding, clothing or other articles which have been exposed to infection. The Commissioner may require any person suspected to be suffering from, or to be a carrier of, an infectious disease to submit to medical examination.

The following table shows, for Western Australia, the number of cases notified during the years 1964 to 1968 for those diseases notifiable in all, or nearly all, States and Territories of Australia. In May 1965 the National Health and Medical Research Council at its Fifty-ninth Session proposed a basic list of diseases to be notifiable in each State and Territory and this table is based upon that proposal. The table does not include all diseases which are notifiable in Western Australia.

NOTIFIABLE DISEASES (*a*)—NUMBER OF CASES NOTIFIED (*b*)

Disease	1964	1965	1966	1967	1968
Brucellosis	4	3	3	2	1
Diphtheria	3	2	2	....	1
Infectious hepatitis	100	83	28	190	147
Leprosy (*c*)	11	18	13	12	26
Leptospirosis	4	14	7	2	1
Paratyphoid fever	....	3	1	1	1
Poliomyelitis	....	....	....	....	2
Tetanus	8	1	2	....	2
Tuberculosis	207	177	173	171	178
Typhoid fever	....	2	2	1	2
Typhus (all forms)	....	....	....	2	....

(*a*) See letterpress immediately preceding table. (*b*) Figures exclude cases where the original diagnosis was subsequently disproved. No cases of cholera, plague, smallpox or yellow fever were notified during the period. (*c*) Aborigines account for practically all of these cases.

Leprosy and trachoma are endemic among the Aborigines of the Kimberley Division in the far north of the State, and cases are, with few exceptions, confined to the Aboriginal population. The Department of Public Health and the Northern Territory Medical Service co-operate in the control of these diseases.

The Commissioner of Public Health may compel any person believed to be suffering from venereal disease to undergo examination by a medical practitioner. Any person who is aware or suspects that he is suffering from venereal disease is required to consult a medical practitioner and, if found to be infected, must continue treatment until a certi-

ficate of cure is issued. Free treatment is available at public hospitals. The number of cases reported to the Department during 1968 was 778, comprising 715 cases of gonorrhoea and 63 cases of syphilis.

A joint campaign of tuberculosis control is conducted by the Commonwealth and State Governments. Under the provisions of the *Tuberculosis Act* 1948, the Commonwealth reimburses the State for capital expenditure incurred after 1 July 1948, and for net maintenance expenditure in excess of that of the base year 1947-48. In addition, the Commonwealth Government pays allowances to tuberculosis sufferers and their dependants, as set out in Part 5 of this Chapter. Western Australia, like the other States, carries out the actual work of diagnosis and treatment. Under the *Health Act, 1911-1968* (State), all persons in Western Australia may be required to undergo X-ray examinations, which are conducted by mobile units of the Tuberculosis Control Branch and at its Perth and Fremantle Chest Clinics.

Special Health Services for Children

In addition to measures provided for immunisation against poliomyelitis, diphtheria and other infectious diseases, Child Health Services and School Medical and Dental Services assist in maintaining the general health of children in Western Australia.

Infant Health Centres have been established throughout the State to advise mothers concerning the care of infants. Expectant mothers are also assisted in this way and country mothers who are unable to attend a Centre may receive advice by letter under a Correspondence Nursing Scheme. It is estimated that three out of every four infants in the State are taken to a Centre at least once in the first year of life. Infant Health Sisters also visit remote areas of the State and interview mothers who are normally dependent on advice given by correspondence.

INFANT HEALTH CENTRES AND CORRESPONDENCE NURSING SCHEME

Particulars	1964	1965	1966	1967	1968
YEAR ENDED 31 DECEMBER					
Infant Health Centres—					
Number of—					
Centres at end of year	72	72	71	71	76
Attendances of infants	243,530	231,191	240,401	240,513	256,129
Visits to households	27,131	26,483	27,312	26,400	27,210
Correspondence Nursing Scheme—					
Number of—					
Infants on roll at end of year	1,316	1,281	1,386	1,550	1,260
Letters received	1,134	999	1,083	1,364	1,675
Letters dispatched	5,982	5,725	5,262	7,176	8,749
YEAR ENDED 30 JUNE					
Receipts and payments (*a*)—	$'000	$'000	$'000	$'000	$'000
Receipts—					
State Government aid	268	268	308	304	315
Local government aid	6	4	3	4	4
Lotteries Commission grants	13	11	7	12	16
Total	286	283	318	320	335
Payments—					
Salaries and wages	228	236	262	260	275
Travelling expenses, etc.	55	51	56	59	60
Total	283	287	318	319	335

(*a*) Infant Welfare Centres Trust Account only. Particulars of receipts and expenditure of local committees (*e.g.* certain expenditure on buildings and motor vehicles) are not available.

Correspondence teaching of parentcraft in schools is conducted by the Child Health Services. During the year ended 31 December 1968, 19,031 lessons and 19,380 letters were received from children and 8,895 letters were dispatched.

The School Medical Services provide for the examination of each child twice during his school life. In addition, a teacher who at any time observes symptoms of illness in a child may refer the matter for attention by a medical practitioner. Parents are notified

of physical defects found during medical examinations and, where a condition needs home supervision, are advised of the action required. Dental defects, ear, nose and throat affections and defective vision are most frequently reported.

The School Dental Services operate mainly in the country, where private dental treatment may not be readily available. Because of limited staff, dental examinations of school children can be repeated only at fairly long intervals, at best about once every two years. Accordingly, in the larger schools, attention is concentrated on the younger children, but at smaller schools all children are examined. Parents are notified of dental treatment required and may have the work done by private dentists or may consent to their children being treated without charge by the schools dentists.

HOSPITALS OTHER THAN MENTAL HOSPITALS

Commonwealth Government Hospitals

The Repatriation General Hospital at Hollywood and the Edward Millen Hospital at Victoria Park provide free medical treatment for ex-servicemen and ex-servicewomen in respect of disabilities which have been accepted as due to war service. With certain exceptions, ex-servicemen or ex-servicewomen who are totally and permanently incapacitated as a result of war service, or who receive war pensions at the intermediate rate, or at the maximum general rate (see letterpress *War Pensions* on page 235) and service pensioners are entitled also to free treatment for disabilities not caused by war service. Widows and children of deceased ex-servicemen whose deaths are accepted as due to war service may also receive free treatment. If the deceased serviceman was unmarried, his widowed mother may receive free treatment if widowed prior to his death or within three years after his death.

State Government and Government-assisted Hospitals

The *Hospitals Act, 1927-1969* is administered, subject to the direction of the Minister for Health, by the Medical Department. For administrative purposes, a hospital under the direct control of the Medical Department is classified as ' departmental ' and is financed from State funds. A hospital classified as a ' Board ' hospital has its own board of management and is subsidised by the State Government.

The principal government and government-assisted hospitals are the Royal Perth Hospital, Fremantle Hospital, Sir Charles Gairdner Hospital, King Edward Memorial Hospital for Women, Princess Margaret Hospital for Children, the Home of Peace for the Chronic Sick, the Perth Dental Hospital, and Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

DEPARTMENTAL AND BOARD HOSPITALS (*a*)

Particulars	At 30 June (*b*)—				
	1964	1965	1966	1967	1968
Number of hospitals—					
Departmental	39	40	40	42	43
Board	53	52	57	55	52
Total	92	92	97	97	95
Medical staff—					
Visiting	423	408	420	422	408
Salaried	192	203	228	210	205
Total	615	611	648	632	613
Nursing staff—					
Matrons and nurses	1,144	1,191	1,229	1,530	1,527
Trainees	1,172	1,129	1,159	1,076	1,273
Nursing assistants	1,111	1,196	1,337	1,643	1,856
Total	3,427	3,516	3,725	4,249	4,656

(*a*) Excluding Perth Dental Hospital. (*b*) The statistics shown for 30 June 1967 and later include particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

The following table gives details of the activities of departmental and Board hospitals during the five years ended 30 June 1968.

DEPARTMENTAL AND BOARD HOSPITALS (*a*)
BED CAPACITY AND PATIENTS (*b*)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Beds and cots at end of year—					
In departmental hospitals	2,048	2,123	2,137	3,257	3,223
In board hospitals—					
Metropolitan	1,972	1,965	2,218	2,322	2,366
Country	1,142	1,091	1,136	1,120	1,083
Total	5,162	5,179	5,491	6,699	6,672
In-patients—					
Number at beginning of year—					
Males	1,492	1,593	1,642	2,137	2,129
Females	1,732	1,874	1,929	2,548	2,533
Admissions—					
Males	49,657	52,216	55,026	56,113	59,895
Females	59,413	62,800	65,404	67,501	71,623
Discharges—					
Males	48,191	50,693	53,422	54,415	58,111
Females	58,157	61,538	64,077	66,128	70,210
Deaths—					
Males	1,365	1,474	1,493	1,706	1,709
Females	1,114	1,207	1,132	1,388	1,350
Number at end of year—					
Males	1,593	1,642	1,753	2,129	2,204
Females	1,874	1,929	2,124	2,533	2,596
Total	3,467	3,571	3,877	4,662	4,800
Average daily number resident	3,284	3,396	3,588	4,534	4,648
Out-patients—Total attendances	488,261	535,727	587,608	610,201	786,293

(*a*) Excluding Perth Dental Hospital. (*b*) From 1966-67 the statistics shown include particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

Departmental and Board hospitals collect fees from patients able to pay for treatment, and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act* 1953-1969 (see letterpress *Hospital and Nursing Home Benefits* on page 237), but are financed mainly from State Government funds.

DEPARTMENTAL AND BOARD HOSPITALS (*a*)
RECEIPTS AND PAYMENTS (*b*)
($'000)

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Receipts—					
From Government funds....	18,398	22,523	23,861	26,862	31,404
Local government aid	3	2	1	4	....
Public subscriptions, legacies, etc.	423	881	448	570	108
Fees	6,400	6,115	6,952	7,749	10,200
Other	135	208	178	404	954
Total	25,358	29,729	31,441	35,589	42,667
Payments—					
Salaries and wages	12,733	13,808	15,341	19,255	21,404
Maintenance of buildings and grounds	2,137	2,573	2,881	2,877	3,937
Other maintenance	5,813	6,415	6,939	7,990	11,544
Capital expenditure	4,647	6,761	6,604	6,152	5,568
Total	25,331	29,557	31,765	36,275	42,452

(*a*) Excluding Perth Dental Hospital. (*b*) From 1966-67 the statistics shown include particulars of Mount Henry Infirmary and Sunset Infirmary for geriatric patients.

As previously indicated, the control of tuberculosis is chiefly a State Government activity, supported by Commonwealth subsidies and carried out under the direction of the Commissioner of Public Health. The principal institution for the treatment of tuberculosis is the Sir Charles Gairdner Hospital at Hollywood which was opened in 1958 as the Perth Chest Hospital.

There is a leprosarium at Derby in the Kimberley Division.

Private Hospitals

In addition to the government hospitals there are a number of private general and maternity hospitals, which are registered and inspected by the Department of Public Health. The principal private hospitals are those established by religious bodies in the metropolitan area and the main country towns. These include the Hospitals of Saint John of God at Subiaco, Belmont, Bunbury, Geraldton, Kalgoorlie and Northam; Saint Anne's, Mount Lawley; the Mount Hospital, Perth; Bethesda Hospital, Claremont and the Hillcrest Maternity Hospital, North Fremantle.

Private hospitals collect fees from patients and receive Commonwealth hospital benefit payments provided under Part V of the *National Health Act* 1953-1969. At 30 June 1968 there were 102 private hospitals in Western Australia approved for payment of hospital benefits under the Act. These hospitals had a total bed capacity of 3,277 at that date.

MENTAL HEALTH SERVICES

The *Mental Health Act, 1962-1968*, which consolidates and amends the law relating to the treatment of mental disorders, came into operation on 1 July 1966. The Mental Health Services established under the Act are administered, subject to the control of the Minister for Health, by the Director of Mental Health Services. The Director must be a psychiatrist and is appointed by the Governor. Institutions authorised by the Act include hospitals for the treatment of mental illness, reception homes, out-patient and child guidance clinics, day hospitals, training centres, geriatric centres, hostels, and sheltered workshop units.

The Act provides for the admission of patients to hospitals approved for the purpose, either on referral by a medical practitioner or by order of a Justice of the Peace supported by the referral of a medical practitioner. A person so received into a hospital must be examined within seventy-two hours by the superintendent or another psychiatrist, and admission as a patient is dependent upon the result of the examination. Unless found to be in need of treatment, the person is required to leave the hospital. Special provisions exist for the detention for observation or treatment of persons admitted by order of a court or from a prison. The Act also provides for voluntary admissions. A person not less than eighteen years of age may be granted admission on his own request. Younger persons may be admitted on the application of a parent or guardian.

Except in the case of a person admitted by order of a court or from a prison, a patient may be released on leave or discharged by the hospital superintendent. A Board of Visitors or the Supreme Court of Western Australia may also, after due consideration, order the release of a patient. Where application for the discharge of a voluntary patient is made either by the patient himself or, in the case of a patient under the age of eighteen years, by the parent or guardian at whose request the patient was admitted, he must be discharged within seventy-two hours.

The principal institution of the Mental Health Services is the Claremont Hospital. Other institutions include the Nathaniel Harper Homes for Children, Heathcote Hospital, Lemnos Hospital, Whitby Falls Hostel, Greenplace Hostel, the Selby Community Clinic, the Havelock Out-patient Clinic, the Fremantle Out-patient Clinic, the Child Guidance Clinic, the Forensic Division, the Irrabeena Referral Centre, the Industrial Rehabilitation Unit and a rehabilitation hostel at Belmont. There is a training centre for the intellectually handicapped at Bassendean and a sheltered workshop at North Fremantle.

The following table shows particulars concerning the mental health service units operated by the Mental Health Services authority during the year ended 30 June 1968.

MENTAL HEALTH SERVICES—YEAR ENDED 30 JUNE 1968

Particulars	Approved hospitals	Rehab-ilitation units	Hostels	Training centres	Out-patient clinics
Number of units at 30 June	3	4	5	2	7
Number of staff at 30 June—					
Medical	17	....	....	2	30
Nursing and attendants	497	....	16	87	25
Other	459	30	10	64	52
Total staff	973	30	26	153	107
Number of persons—					
On register at beginning of year	2,178	319	157	83	(*a*) 8,858
Admissions	2,656	154	159	109	(*b*) 35,637
Discharges (*c*)	2,851	198	147	105	n.a.
On register at end of year	2,091	275	169	87	(*d*)

n.a. denotes 'not applicable'.

(*a*) Patients treated during the year ended 30 June 1968. (*b*) Number of out-patient attendances. (*c*) Includes deaths and, in the case of 'approved hospitals', includes patients discharged from hospitals for after care. (*d*) Not applicable; see note (*a*).

CARE OF AGED AND DISABLED PERSONS

Part 5 of this Chapter gives particulars of pensions, allowances and some other benefits available to aged and disabled persons under the provisions of the Social Services Act, the Repatriation Act, the National Health Act and the Tuberculosis Act. Forms of assistance extended to such persons by other Commonwealth Acts are dealt with below.

Aged Persons Homes Act

Under the provisions of the *Aged Persons Homes Act* 1954-1969 the Commonwealth Government extends financial assistance to religious, charitable and other organisations in providing accommodation for the aged. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to organisations ' to encourage and assist the provision of suitable homes for aged persons, and in particular homes at which aged persons may reside in conditions approaching as nearly as possible normal domestic life . . . '. For the purposes of the Act, the term ' aged person ' means a man aged sixty-five years or over or a woman aged sixty years or over and includes the spouse of the aged person. The Act authorises grants to eligible organisations to be applied towards the cost of erecting or purchasing approved homes to be used permanently for the accommodation of aged persons. To be eligible for assistance an organisation must be one which is carried on otherwise than for the purpose of profit or gain to its individual members, and may be a religious, charitable or benevolent organisation, an organisation of former members of the defence forces, an organisation approved by the Governor-General, or a local governing body. An organisation conducted or controlled by the Government of the Commonwealth or of a State is not eligible for assistance.

When the original Act commenced on 16 December 1954 the grant was made on the basis of $1 for each $1 raised by the organisation excluding borrowed money and money received from a governmental body. An amending Act, operative from 22 October 1957, increased the Commonwealth contribution to $2 for each $1 raised by the organisation. Grants are made from moneys appropriated by the Parliament from the Consolidated Revenue Fund.

From the inception of the scheme to 30 June 1969, 141 grants aggregating $8·78 million had been made to organisations in Western Australia to provide accommodation for 3,087 persons.

A supplementary grant may be approved in a year subsequent to the year when the original grant was approved. In the following table each supplementary grant has been included in the year in which the additional amount was actually approved.

AGED PERSONS HOMES GRANTS—WESTERN AUSTRALIA

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69	From inception to 30 June 1969
Number of grants	12	14	13	14	24	141
Number of persons accommodated	255	420	258	237	496	3,087
Amount of grants approved	$'000 814	$'000 1,372	$'000 888	$'000 833	$'000 1,855	$'000 8,782

Sheltered Employment (Assistance) Act

The *Sheltered Employment (Assistance) Act* 1967 (Commonwealth), which came into operation on 30 June 1967, repealed the *Disabled Persons Accommodation Act* 1963 but incorporated and expanded the provisions of the repealed Act relating to assistance by the Commonwealth towards the provision of sheltered employment and accommodation for certain disabled persons. The Act is administered, subject to any directions of the Minister, by the Director-General of Social Services.

Grants are made to eligible organisations, deemed by the Minister to provide employment for disabled persons, as assistance towards meeting the cost of the purchase, construction or alteration of approved premises or the purchase of land for the provision of sheltered employment; the purchase or construction of approved residential accommodation for persons engaged in sheltered employment; rent payable in respect of approved premises; and the purchase of approved equipment.

SHELTERED WORKSHOPS GRANTS—WESTERN AUSTRALIA

Grants approved for—	1967-68		1968-69	
	Number	Amount	Number	Amount
		$		$
Workshop premises	1	25,948	3	225,520
Workshop equipment	8	18,173	9	25,853
Workshop rental	1	333	2	2,552
Residential units	....	....	1	152,567
Total	10	44,454	15	406,492

Sheltered Employment Allowances

During 1967, an amendment was made to the Social Services Act to permit invalid pensioners and certain other disabled persons to earn an income from sheltered employment, and at the same time to be eligible to receive a special allowance which, in the case of an invalid pensioner, replaces the pension. The maximum rate of the sheltered employment allowance is the same as the maximum rate of invalid pension (see letterpress *Age and Invalid Pensions* in Part 5 of this Chapter). The purpose of the allowance is to provide an incentive for disabled persons, whether in receipt of an invalid pension or not, to engage in gainful employment.

Provision is made in the Act for the maximum amount which may be earned from sheltered employment without affecting the special allowance and for reduction of the allowance where earnings exceed the prescribed amount.

Payments of allowances are met from the National Welfare Fund and commenced on 6 July 1967. During the year ended 30 June 1969 expenditure in Western Australia amounted to $36,506.

Other Commonwealth Assistance

Under a set of Acts passed in 1969 the Commonwealth Government extends financial assistance to the States for the development of a range of home care services, senior citizens' centres and nursing homes, mainly for the aged, and the construction of self-contained dwelling units for certain single aged pensioners. These Acts, all of which provide assistance commencing with the financial year 1969-70, are the *States Grants (Home Care) Act* 1969, the *States Grants (Paramedical Services) Act* 1969, the *States Grants (Nursing Homes) Act* 1969 and the *States Grants (Dwellings for Aged Pensioners) Act* 1969.

Under the States Grants (Home Care) Act the Commonwealth shares with a State on a $1 for $1 basis the cost of approved housekeeping or other domestic services provided wholly or mainly for aged persons in their homes. The Commonwealth also shares with a State on a $1 for $1 basis up to a maximum of one-third of the capital cost of approved senior citizens' centres, as well as paying half the salary of a welfare officer engaged in the co-ordination of home care services and associated with a senior citizens' centre.

The States Grants (Paramedical Services) Act authorises the Commonwealth to share with a State on a $1 for $1 basis the cost of approved paramedical services, such as chiropody, occupational therapy, physiotherapy and speech therapy, provided wholly or mainly for aged persons in their homes.

The States Grants (Nursing Homes) Act provides for the Commonwealth to share with a State on a $1 for $1 basis the capital costs of approved nursing homes wholly or mainly for aged persons of limited means. The Act stipulates that the Commonwealth's contribution during the five-year period ending 30 June 1974 shall not exceed $5 million, Western Australia's share being a maximum of $381,000.

The States Grants (Dwellings for Aged Pensioners) Act authorises the Commonwealth to share with a State on a $1 for $1 basis the cost of providing self-contained dwellings for certain recipients of an age pension payable under the Social Services Act or a service pension under the Repatriation Act. Commonwealth expenditure during the five-year period to 30 June 1974 is limited to $25 million, Western Australia's share being $1·75 million.

Chapter V—continued

Part 4—Housing and Building

HOUSING AND THE CENSUS

NOTE. Dwellings occupied solely by full-blood Aborigines are excluded from all tables in this Part which contain information derived from the Census of Population and Housing. Such dwellings were excluded from the Census tabulations in accordance with the requirements of section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines *on page 125.*

The definitions given below are relevant when considering data derived from the Census of Population and Housing.

OCCUPIED DWELLING. For the purpose of the Census of Population and Housing an occupied dwelling is any habitation occupied by a household group living together as a domestic unit, and may comprise the whole of a building or only part of it. The term has therefore a very wide reference and includes, in addition to houses and flats, a great variety of dwellings ranging from a single-roomed shack to a multi-roomed hotel or institution.

UNOCCUPIED DWELLINGS include vacant dwellings available for sale or renting; dwellings such as week-enders or holiday homes and seasonal workers' quarters which were not occupied on Census night; dwellings normally occupied but whose occupants were temporarily absent on the night of the Census; newly-completed dwellings whose owners or tenants had not entered into occupation on Census night; and dwellings described as ' to be demolished ', ' condemned ', ' exhibition home ', etc. The total number of unoccupied dwellings does not, therefore, represent the number of vacant houses and flats available for sale or renting.

PRIVATE DWELLINGS comprise the following classes:

PRIVATE HOUSE, which includes semi-detached houses; terrace houses; and shared private houses for which only one Householder's Schedule was received.

SHARE OF PRIVATE HOUSE. A share of a private house is a portion of a shared private house which is occupied separately and for which portion a separate Householder's Schedule was furnished.

SELF-CONTAINED FLAT. A self-contained flat is part of a house or other building which can be completely closed off and which has its own cooking and bathing facilities. Home units are included in this class.

SHARE OF SELF-CONTAINED FLAT is that portion of a shared self-contained flat for which a separate Householder's Schedule was furnished.

SHED, HUT, TENT, ETC. includes sheds, huts, tents, garages, caravans and boats, which are used for dwelling purposes.

OTHER PRIVATE DWELLINGS include flats (not self-contained) and dwellings such as rooms, apartments, etc. which are parts of buildings but are not self-contained units.

Dwellings at Censuses from 1901

The following table shows the numbers of occupied and unoccupied dwellings recorded in Western Australia at each Census from 1901 to 1966.

DWELLINGS—CENSUSES, 1901 TO 1966

Census date	Occupied dwellings				Unoccupied dwellings
	Private		Non-private	Total	
	Number	Average number of inmates			
1901—31 March	(a) 46,436	(b) 3·35	2,070	48,506	2,263
1911— 3 April	(c) 66,553	(d) 3·68	2,317	68,870	3,158
1921— 4 April	70,185	4·11	3,363	73,548	3,274
1933—30 June	100,441	3·95	3,137	103,578	4,029
1947—30 June	122,078	3·73	(e) 2,689	124,767	2,606
1954—30 June	159,496	3·64	(e) 3,327	162,823	6,614
1961—30 June	191,616	3·59	(e) 2,701	194,317	13,705
1966—30 June	221,444	3·52	(e) 3,219	224,663	17,965

(a) Comprises 17,702 dwellings of calico, canvas, and hessian, with an average of 2·10 inmates, and 28,734 other dwellings with an average of 4·12 inmates. (b) See note (a). (c) Comprises 14,216 dwellings of calico, canvas, and hessian, with an average of 1·93 inmates, and 52,337 other dwellings with an average of 4·16 inmates. (d) See note (c). (e) For further details see next table.

Class of Dwelling

The following table shows the number of occupied dwellings in Western Australia according to class of dwelling at each Census from 1947 to 1966. Private houses constituted 90·7 per cent of all occupied private dwellings in 1966 compared with 91·6 per cent in 1961. The proportion of self-contained flats to total occupied private dwellings increased from 4·53 per cent in 1961 to 6·36 per cent in 1966.

DWELLINGS ACCORDING TO CLASS
CENSUSES, 1947 TO 1966

Class of dwelling	Census, 30 June—			
	1947	1954	1961	1966
Occupied dwellings—				
Private dwellings—				
Private house	(a) 110,576	140,383	175,495	200,900
Share of private house	5,969	7,487	2,788	844
Self-contained flat	4,021	5,257	8,672	14,074
Share of self-contained flat				18
Shed, hut, tent, etc.	(b)	4,480	3,641	3,439
Other private dwellings	1,512	1,889	1,020	2,169
Total, Private dwellings	122,078	159,496	191,616	221,444
Non-private dwellings—				
Caretaker's quarters	124	156	(c)	(c)
Licensed hotel	454	445	451	456
Motel	1,581	1,594	6	43
Boarding house, etc.			1,083	904
Educational institution	106	127	(d) 70	55
Religious institution	11	20	(d) 100	125
Charitable institution	47	69	55	55
Hospital	143	138	151	188
Staff barracks	223	778	630	799
Other non-private dwellings			155	594
Total, Non-private dwellings	2,689	3,327	2,701	3,219
Total, Occupied dwellings	124,767	162,823	194,317	224,663
Unoccupied dwellings	2,606	6,614	13,705	17,965

(a) Includes 'shed, hut, tent, etc.' (b) Not recorded separately; included with 'private house'. (c) Classified to 'private dwellings'. (d) Certain institutions previously classified as 'Educational' were classified as 'Religious'.

The following table gives particulars of the number of dwellings in each class at the Censuses of 1961 and 1966, together with the total numbers of persons enumerated in each class. Of the total of 832,181 persons enumerated in private and non-private dwellings in Western Australia at the Census of 30 June 1966, 88·7 per cent were in private houses (including shared houses), 3·58 per cent in self-contained flats (including shared flats), and 6·31 per cent in non-private dwellings. The corresponding percentages in 1961 were 90·0, 2·59, and 5·98.

CLASS OF DWELLING AND PERSONS ENUMERATED
CENSUSES, 1961 AND 1966

Particulars	Census, 30 June 1961		Census, 30 June 1966					
	Total	Per cent of total	Perth Statistical Division	Other Divisions	Total	Per cent of total	Increase or decrease(*a*) since 1961	
							Number	Per cent
NUMBER OF DWELLINGS								
Occupied dwellings—								
Private dwellings—								
Private house	175,495	90·31	139,049	61,851	200,900	89·42	25,405	14·48
Share of private house	2,788	1·43	707	137	844	0·38	—1,944	—69·73
Self-contained flat	(*b*) 8,672	(*b*) 4·46	12,072	2,002	14,074	6·26	5,420	62·50
Share of self-contained flat			18	....	18	0·01		
Shed, hut, tent, etc.	3,641	1·87	290	3,149	3,439	1·53	—202	5·55
Other private dwellings	1,020	0·52	1,751	418	2,169	0·97	1,149	112·65
Total, Private dwellings	191,616	98·61	153,887	67,557	221,444	98·57	29,828	15·57
Non-private dwellings	2,701	1·39	1,098	2,121	3,219	1·43	518	19·18
Total, Occupied dwellings	194,317	100·00	154,985	69,678	224,663	100·00	30,346	15·62
Unoccupied dwellings	13,705	....	....	....	17,965	....	4,260	31·08
PERSONS ENUMERATED (*c*)								
Persons enumerated in—								
Private dwellings—								
Private house	652,070	88·52	500,599	235,032	735,631	87·92	83,561	12·81
Share of private house	6,909	0·94	1,756	464	2,220	0·27	—4,689	—67·87
Self-contained flat	(*b*) 18,977	(*b*) 2·58	24,843	4,953	29,796	3·56	10,840	57·12
Share of self-contained flat			21	....	21	0·00		
Shed, hut, tent, etc.	8,598	1·17	680	7,738	8,418	1·01	—180	—2·09
Other private dwellings	1,853	0·25	2,797	775	3,572	0·43	1,719	92·77
Total, Private dwellings	688,407	93·45	530,696	248,962	779,658	93·19	91,251	13·26
Non-private dwellings	43,755	5·94	27,987	24,536	52,523	6·28	8,768	20·04
Total, Occupied dwellings	732,162	99·39	558,683	273,498	832,181	99·47	100,019	13·66
Persons enumerated elsewhere—								
Campers-out	1,450	0·20	138	1,316	1,454	0·17	4	0·28
Migratory population (*d*)	3,017	0·41	....	3,038	3,038	0·36	21	0·70
Total population	736,629	100·00	558,821	277,852	836,673	100·00	100,044	13·58

(*a*) Minus sign (—) denotes decrease. (*b*) At the 1961 Census, 'Share of self-contained flat' was not tabulated as a separate class; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (*c*) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 125. (*d*) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also persons enumerated on long-distance trains, motor coaches or aircraft.

Number of Inmates

At the 1966 Census, 85·1 per cent of occupied private houses in Western Australia had less than six inmates, compared with 84·7 per cent in 1961. In 1966, 89·1 per cent of occupied self-contained flats had less than four inmates, compared with 87·2 per cent in 1961.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
NUMBER OF INMATES (*a*): CENSUSES, 1961 AND 1966

Number of inmates (*a*) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
1	13,958	12,023	5,565	17,588	2,629	3,870	554	4,424
2	38,547	32,700	13,088	45,788	3,630	5,374	687	6,061
3	32,174	25,498	10,956	36,454	1,302	1,701	354	2,055
4	36,762	29,175	11,526	40,701	633	743	207	950
5	27,155	20,897	9,492	30,389	309	237	118	355
6	15,182	11,078	5,989	17,067	105	93	45	138
7	6,744	4,592	2,874	7,466	44	34	25	59
8	3,022	1,854	1,403	3,257	15	13	8	21
9	1,062	703	514	1,217	4	5	4	9
10 and over	889	529	444	973	1	2	....	2
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Total inmates	652,070	500,599	235,032	735,631	18,977	24,843	4,953	29,796
Average number of inmates	3·72	3·60	3·80	3·66	2·19	2·06	2·47	2·12

(*a*) Excludes full-blood Aborigines; see letterpress *Aborigines* on page 125.

Number of Rooms

Occupied private houses containing five rooms were the most numerous group in Western Australia at both the 1961 and 1966 Censuses, comprising respectively 40·2 per cent and 42·9 per cent of the total. In 1966, 85·5 per cent of occupied self-contained flats had less than five rooms, compared with 79·5 per cent in 1961.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
NUMBER OF ROOMS: CENSUSES, 1961 AND 1966

Number of rooms (*a*) per house or flat	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
1	108	61	124	185	93	239	43	282
2	1,523	854	714	1,568	1,147	2,527	342	2,869
3	5,815	3,388	2,531	5,919	2,764	4,170	665	4,835
4	37,176	23,495	11,270	34,765	2,891	3,567	487	4,054
5	70,491	62,508	23,581	86,089	1,143	1,113	277	1,390
6	40,173	31,706	13,382	45,088	403	303	101	404
7	13,122	11,528	6,194	17,722	107	94	47	141
8	4,314	3,681	2,388	6,069	50	36	25	61
9	1,486	1,084	902	1,986	29	9	5	14
10 and over	1,101	744	765	1,509	4	14	10	24
Not stated	186	(*b*)	(*b*)	(*b*)	41	(*b*)	(*b*)	(*b*)
Total houses, flats	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Average number of rooms	5·22	5·30	5·36	5·32	3·69	3·37	3·67	3·41

(*a*) Includes kitchen and permanently enclosed sleep-out, but does not include bathroom, toilet, pantry, laundry or storeroom. (*b*) In the small number of cases where the number of rooms was not stated, a number was selected during processing of the 1966 Census schedules.

Material of Outer Walls

Brick and brick veneer predominated as materials of outer walls of occupied private dwellings in Western Australia at both the 1961 and 1966 Censuses, representing 42·7 per cent of private houses and 75·9 per cent of self-contained flats in 1961, and 49·9 per cent and 80·3 per cent in 1966. Fibro-cement was next in importance, being used in 31·7 per cent of private houses in 1961 and 30·5 per cent in 1966. The proportion of private houses with outer walls of wood declined from 16·9 per cent in 1961 to 13·1 per cent in 1966.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
MATERIAL OF OUTER WALLS: CENSUSES, 1961 AND 1966

Material of outer walls	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Brick	74,939	81,812	7,554	89,366	6,579	10,382	688	11,070
Brick veneer (*a*)		9,451	1,487	10,938		191	40	231
Stone	3,303	1,562	1,518	3,080	238	194	49	243
Concrete	4,815	2,174	2,487	4,661	156	366	46	412
Wood	29,744	12,440	13,802	26,242	474	287	281	568
Iron, tin	5,330	386	3,702	4,088	153	15	166	181
Fibro-cement	55,637	31,083	30,204	61,287	1,043	629	729	1,358
Other	1,615	141	1,097	1,238	19	8	3	11
Not stated	112	(*b*)	(*b*)	(*b*)	10	(*b*)	(*b*)	(*b*)
Total	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(*a*) So described in individual Census schedules. (*b*) In the small number of cases where material of outer walls was not stated a material was selected during processing of the 1966 Census schedules.

Nature of Occupancy

At the 1961 Census, 73·8 per cent of private houses in Western Australia were occupied by owners including purchasers by instalments, compared with 74·9 per cent in 1966. In the same period the proportion of private houses occupied by tenants, including tenants of government-owned houses, declined from 23·8 per cent to 22·8 per cent. Of the total number of occupied self-contained flats at the 1961 Census, 84·4 per cent were occupied by tenants and 12·7 per cent by owners. At the 1966 Census the proportions were 83·9 per cent and 13·4 per cent.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
NATURE OF OCCUPANCY: CENSUSES, 1961 AND 1966

Nature of occupancy	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Owner (*a*)	129,583	109,647	40,864	150,511	1,100	1,573	306	1,879
Tenant	41,710	27,734	17,986	45,720	7,315	10,261	1,548	11,809
Caretaker	1,784	946	1,256	2,202	163	163	61	224
Other	1,867	416	1,221	1,637	72	35	50	85
Not stated	551	306	524	830	22	40	37	77
Total	175,495	139,049	61,851	200,900	8,672	12,072	2,002	14,074

(*a*) Including purchaser by instalments.

Facilities

At the 1961 Census the question on facilities (gas, electricity, television set) was answered in relation to 190,457 private dwellings in Western Australia. Of this total, 61·3 per cent had electricity only, 33·5 per cent had both electricity and gas, and 4·99 per cent had neither electricity nor gas. At the 1966 Census, when replies were furnished in relation to 220,620 private dwellings, the proportions were 60·8 per cent with electricity only, 37·1 per cent with both electricity and gas, and 1·64 per cent with neither electricity nor gas. At the 1961 Census, 37·5 per cent of occupied private dwellings were stated to have a television set, compared with 68·6 per cent in 1966.

In the following table similar information is shown for private houses and self-contained flats at the Censuses of 1961 and 1966.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
FACILITIES: CENSUSES, 1961 AND 1966

Facilities	Private house				Self-contained flat			
	Census, 30 June—				Census, 30 June—			
	1961	1966			1961	1966		
	Total, private houses (a)	Perth Statistical Division	Other Divisions	Total	Total, self-contained flats	Perth Statistical Division	Other Divisions	Total
Gas only	419	118	613	731	7	8	14	22
Electricity only	112,086	85,220	41,422	126,642	2,948	3,887	1,371	5,258
Gas and electricity	56,101	53,192	17,224	70,416	5,667	8,148	585	8,733
Neither gas nor electricity	9,401	404	2,246	2,650	33	5	15	20
Not stated	1,129	115	346	461	17	24	17	41
Total	(a)179,136	139,049	61,851	200,900	8,672	12,072	2,002	14,074
Television set	68,424	118,066	24,482	142,548	2,514	7,653	473	8,126

(a) Includes sheds, huts, etc. See second table on page 211.

Motor Vehicles

The question concerning motor vehicles used by members of households (see footnote to following table) was included in the census schedule in 1966 for the first time. Of the total of 198,097 occupied private houses in Western Australia for which replies were received, 17·8 per cent had no vehicle, 53·7 per cent had one vehicle, 20·9 per cent had two vehicles, 5·37 per cent had three vehicles, and 2·19 per cent had four or more vehicles. The corresponding proportions for self-contained flats were 35·6 per cent, 53·5 per cent, 9·24 per cent, 1·31 per cent, and 0·32 per cent.

OCCUPIED PRIVATE HOUSES AND SELF-CONTAINED FLATS
NUMBER OF MOTOR VEHICLES (a): CENSUS, 30 JUNE 1966

Number of motor vehicles (a)	Private house			Self-contained flat		
	Perth Statistical Division	Other Divisions	Total	Perth Statistical Division	Other Divisions	Total
No vehicle	27,465	7,872	35,337	4,372	499	4,871
1 vehicle	75,935	30,483	106,418	6,241	1,085	7,326
2 vehicles	27,719	13,657	41,376	1,008	257	1,265
3 vehicles	5,092	5,544	10,636	131	48	179
4 or more vehicles	1,100	3,233	4,333	26	18	44
Not stated	1,738	1,062	2,800	294	95	389
Total houses, flats	139,049	61,851	200,900	12,072	2,002	14,074
Total vehicles (a)	151,394	89,203	240,597	8,783	1,827	10,610

(a) Householders were asked to state ' the number of Motor Vehicles (excluding Motor Cycles and Scooters) used by members of this household that were garaged or parked at or near this dwelling for the night of Thursday, 30th June '.

Unoccupied Dwellings

For dwellings not occupied on the night of the Census, collectors were required to determine as many particulars as possible and, where the information was available, to enter on the Census schedule the reason why the dwelling was unoccupied. That this information could not be ascertained in a high proportion of cases is evident from the numbers shown in the following table in the category ' Other and not stated ', equivalent to 17·1 per cent of all unoccupied private dwellings in 1961 and 34·1 per cent in 1966.

UNOCCUPIED PRIVATE DWELLINGS—CENSUSES, 1961 AND 1966

Reason for being unoccupied	Census, 30 June—			
	1961	1966		
	Total, private unoccupied dwellings	Perth Statistical Division	Other Divisions	Total
For sale or for renting	2,487	1,593	1,192	2,785
Holiday home, week-ender, seasonal workers' quarters	4,771	2,266	2,852	5,118
Occupants temporarily absent	3,463	1,828	1,390	3,218
To be demolished, condemned	296	187	197	384
Other and not stated	2,273	2,309	3,653	5,962
Total	13,290	8,183	9,284	17,467

Geographical Distribution of Dwellings

Statistical Divisions. The following tables show the numbers and proportions of occupied dwellings in each of the Statistical Divisions of Western Australia at each Census from 1911 to 1966, and a dissection according to class of dwelling at the Censuses of 1961 and 1966.

Between the Censuses of 1961 and 1966, the number of occupied private houses in the Perth Statistical Division increased by 18·4 per cent compared with an increase of 6·46 per cent in the rest of the State. The number of occupied self-contained flats rose by 65·7 per cent in the Perth Statistical Division and 44·5 per cent in the rest of the State. The total number of occupied private dwellings in the Perth Statistical Division rose by 19·9 per cent. Other Divisions showing an increase were North-West, 75·6 per cent; Kimberley, 63·1 per cent; Pilbara, 59·7 per cent; Northern Agricultural, 11·1 per cent; Southern Agricultural, 8·19 per cent; South-West, 5·07 per cent; and Central Agricultural, 2·58 per cent. Divisions in which a decrease was recorded were Central, 11·4 per cent, and Eastern Goldfields, 2·28 per cent.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (*a*)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	24,358	35,190	53,394	74,478	102,745	129,488	154,985
Other Divisions—							
South-West	7,381	8,319	12,544	13,611	17,336	18,714	19,703
Southern Agricultural	3,903	4,654	6,410	6,522	9,159	10,775	11,688
Central Agricultural	8,115	9,026	12,352	10,872	13,378	14,097	14,540
Northern Agricultural	2,953	3,846	5,963	5,691	7,403	8,338	9,345
Eastern Goldfields	17,058	9,808	9,271	10,614	9,607	9,389	9,257
Central	3,261	1,344	2,247	1,628	1,205	1,015	926
North-West	416	389	526	506	749	922	1,624
Pilbara	856	414	323	322	564	643	1,047
Kimberley	569	558	548	523	677	936	1,548
Total	44,512	38,358	50,184	50,289	60,078	64,829	69,678
WESTERN AUSTRALIA	68,870	73,548	103,578	124,767	162,823	194,317	224,663

(*a*) For component local government areas, see map at back of Year Book.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CENSUSES, 1911 TO 1966
PERCENTAGE DISTRIBUTION
(Figures compiled on the basis of the 1966 boundaries)

Statistical Division (a)	Census date						
	1911 3 April	1921 4 April	1933 30 June	1947 30 June	1954 30 June	1961 30 June	1966 30 June
Perth Statistical Division	35·37	47·85	51·55	59·69	63·10	66·64	68·99
Other Divisions—							
South-West	10·72	11·31	12·11	10·91	10·65	9·63	8·77
Southern Agricultural	5·67	6·33	6·19	5·23	5·63	5·55	5·20
Central Agricultural	11·78	12·27	11·93	8·71	8·22	7·25	6·47
Northern Agricultural	4·29	5·23	5·76	4·56	4·55	4·29	4·16
Eastern Goldfields	24·77	13·34	8·95	8·51	5·90	4·83	4·12
Central	4·74	1·83	2·17	1·30	0·74	0·52	0·41
North-West	0·60	0·53	0·51	0·41	0·46	0·47	0·72
Pilbara	1·24	0·56	0·31	0·26	0·35	0·33	0·47
Kimberley	0·83	0·76	0·53	0·42	0·42	0·48	0·69
Total	64·63	52·15	48·45	40·31	36·90	33·36	31·01
WESTERN AUSTRALIA	100·00	100·00	100·00	100·00	100·00	100·00	100·00

(a) For component local government areas, see map at back of Year Book.

OCCUPIED DWELLINGS IN STATISTICAL DIVISIONS—CLASS OF DWELLING
CENSUSES, 1961 AND 1966

Statistical Division (a)	Private dwellings						Total, private dwellings	Non-private dwellings	Total, occupied dwellings
	Private house	Share of private house	Self-contained flat	Share of self-contained flat	Shed, hut, tent, etc.	Other			
CENSUS, 30 JUNE 1961									
Perth Statistical Division	117,397	2,258	7,287		544	815	128,301	1,187	129,488
Other Divisions—									
South-West	17,292	167	419		544	44	18,466	248	18,714
Southern Agricultural	9,716	72	205		568	20	10,581	194	10,775
Central Agricultural	12,902	146	183		577	22	13,830	267	14,097
Northern Agricultural	7,415	77	149		449	28	8,118	220	8,338
Eastern Goldfields	8,112	50	372	(b)	555	74	9,163	226	9,389
Central	778	....	7		147	....	932	83	1,015
North-West	720	4	22		81	8	835	87	922
Pilbara	487	6	12		62	1	568	75	643
Kimberley	676	8	16		114	8	822	114	936
Total	58,098	530	1,385		3,097	205	63,315	1,514	64,829
WESTERN AUSTRALIA	175,495	2,788	8,672		3,641	1,020	191,616	(c) 2,701	194,317
CENSUS, 30 JUNE 1966									
Perth Statistical Division	139,049	707	12,072	18	290	1,751	153,887	1,098	154,985
Other Divisions—									
South-West	18,398	34	561	....	308	102	19,403	300	19,703
Southern Agricultural	10,672	13	291	....	417	55	11,448	240	11,688
Central Agricultural	13,378	23	325	....	409	52	14,187	353	14,540
Northern Agricultural	8,251	16	271	....	417	68	9,023	322	9,345
Eastern Goldfields	7,848	32	405	....	556	114	8,955	302	9,257
Central	686	3	11	....	123	3	826	100	926
North-West	966	6	50	....	431	13	1,466	158	1,624
Pilbara	645	2	30	....	226	5	908	139	1,047
Kimberley	1,007	8	58	....	262	6	1,341	207	1,548
Total	61,851	137	2,002	....	3,149	418	67,557	2,121	69,678
WESTERN AUSTRALIA	200,900	844	14,074	18	3,439	2,169	221,444	(c) 3,219	224,663

(a) For component local government areas, see map at back of Year Book. (b) Not tabulated separately; where two or more household groups were occupying a self-contained flat they were counted as one household group occupying a self-contained flat. (c) For dissection according to class of dwelling see second table on page 211.

Australian States. The following table gives a dissection according to class of dwellings recorded in each of the Australian States and in Australia as a whole at the Census of 30 June 1966.

DWELLINGS ACCORDING TO CLASS—AUSTRALIAN STATES
CENSUS, 30 JUNE 1966

Class of dwelling	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Occupied dwellings—							
Private dwellings—							
Private house	961,077	752,776	381,681	271,045	200,900	88,780	2,681,725
Share of private house	11,496	9,166	1,586	2,140	844	469	25,914
Self-contained flat	164,380	92,166	43,069	20,802	14,074	7,036	345,585
Share of self-contained flat	666	277	104	61	18	22	1,168
Shed, hut, tent, etc.	12,309	3,725	7,952	1,938	3,439	882	31,056
Other private dwellings	28,194	23,338	7,759	3,644	2,169	1,093	66,478
Total, Private dwellings	1,178,122	881,448	442,151	299,630	221,444	98,282	3,151,926
Non-private dwellings	11,417	7,536	7,018	2,684	3,219	1,084	33,730
Total, Occupied dwellings	1,189,539	888,984	449,169	302,314	224,663	99,366	3,185,656
Unoccupied dwellings	101,546	64,757	41,818	25,110	17,965	10,800	263,873

(a) Includes Northern Territory (7,499 occupied private dwellings and 568 occupied non-private dwellings) and Australian Capital Territory (23,350 occupied private dwellings and 204 occupied non-private dwellings).

In the following table occupied dwellings recorded in each State and Territory at the 1966 Census are classified as *Metropolitan Urban*, *Other Urban* or *Rural* in accordance with the criteria outlined on page 131.

OCCUPIED DWELLINGS (a)—METROPOLITAN, OTHER URBAN, AND RURAL (b)
STATES AND TERRITORIES: CENSUS, 30 JUNE 1966

State or Territory	Urban			Rural	Total
	Metropolitan	Other	Total		
NUMBER OF DWELLINGS					
New South Wales	706,595	334,201	1,040,796	148,743	1,189,539
Victoria	593,408	174,555	767,963	121,021	888,984
Queensland	200,239	150,935	351,174	97,995	449,169
South Australia	205,457	46,926	252,383	49,931	302,314
Western Australia	139,509	36,906	176,415	48,248	224,663
Tasmania	32,371	38,155	70,526	28,840	99,366
Northern Territory	....	6,503	6,503	1,564	8,067
Australian Capital Territory	22,763	....	22,763	791	23,554
AUSTRALIA	1,900,342	788,181	2,688,523	497,133	3,185,656
PERCENTAGE DISTRIBUTION					
New South Wales	59·40	28·10	87·50	12·50	100·00
Victoria	66·75	19·64	86·39	13·61	100·00
Queensland	44·58	33·60	78·18	21·81	100·00
South Australia	67·96	15·52	83·48	16·52	100·00
Western Australia	62·10	16·43	78·52	21·48	100·00
Tasmania	32·58	38·40	70·98	29·02	100·00
Northern Territory	....	80·61	80·61	19·39	100·00
Australian Capital Territory	96·64	....	96·64	3·36	100·00
AUSTRALIA	59·65	24·74	84·39	15·61	100·00

(a) Private and non-private. (b) See page 131 for definitions of *Metropolitan*, *Other Urban*, and *Rural*.

GOVERNMENT AND GOVERNMENT-SPONSORED HOUSING

The State Housing Commission

The State Housing Commission was established in January 1947 under the State Housing Act of 1946 to replace the Workers' Homes Board which had been created in 1912 to 'erect and dispose of workers' dwellings, and to make advances to people of

limited means to provide homes for themselves'. The Act confers on the Commission the legal authority formerly vested in the Board and has as its objects ' the improvement of existing housing conditions ' and ' the provision of adequate and suitable housing accommodation for persons of limited means and certain other persons not otherwise adequately housed'. The legislation is comprehensive in scope, providing for the erection of homes for workers, the making of advances to workers for the purchase of homes, the erection of homes for letting on a weekly rental basis, the acquisition and development of land, the clearing of slums, the erection of hostels and the planning of community facilities.

The Commission consists of seven members of whom one must be the person occupying the office of General Manager of the Commission, one an officer of the State Public Service, one a representative of the building trades unions, one a registered builder (or a person qualified to be so registered), one a woman, one a discharged member of the Forces, and one a person with a wide knowledge of and experience in housing conditions in the State. The functions of the Commission include the State-wide provision of low-cost housing for purchase or rental by families of low and moderate income, under the authority of the State Housing Act and of the Commonwealth and State Housing Agreements; the administration of the Building Societies Act and the Housing Loan Guarantee Act; the administration of the War Service Homes Act (Commonwealth) as it applies to Western Australia; and the construction and maintenance of dwellings on behalf of the Government Employees' Housing Authority. During 1968 the McNess Housing Trust Act was repealed and the Commission, which formerly carried out the administrative, technical and other work associated with the operations of the Trust, took over its powers, obligations, assets and liabilities. Tables showing the operations of the Commission are shown on page 221.

State Housing Act. Under the authority of the *State Housing Act, 1946-1969*, the State Housing Commission uses funds provided by the State Government to build dwellings for sale and to lend money for home building. Eligibility for assistance is restricted to persons with income below a prescribed amount, which varies according to movements in the State basic wage, but north of 26°S. latitude the Minister may allow assistance to a family having a higher income. Loans of up to $8,000 (or more, in some cases) may be made on a minimum deposit of $200 including the ingoing fees (or less, at the discretion of the Commission), the maximum period of repayment being forty-five years. The rate of interest (30 June 1969) is 5⅜ per cent per annum reducible.

Various forms of assistance have been granted to encourage home ownership, including loans secured by mortgage, advances made under contract of sale, advances for acquiring homes under leasehold conditions, second mortgage loans and loans for the completion of partly-built dwellings.

Commonwealth and State Housing Agreements. The final draft of an agreement on housing between the Commonwealth and State Governments was prepared at the Conference of Premiers in August 1945 and was later ratified by Commonwealth and State legislation. The Commonwealth and State Housing Agreement Act, passed by the State Parliament in 1945, enabled Western Australia to participate in the Agreement, the purpose of which was to provide homes quickly, primarily for persons at the lower income levels, by standardisation of design and erection in large groups. The Agreement provided a broad basis of collaboration between the Commonwealth and the State with the Commonwealth providing advances of money, general direction on policy and co-ordination of effort and the State undertaking the actual site acquisition and planning, the construction of the dwellings, the selection of tenants and the detailed administrative work.

Further details of the 1945 Agreement are given on page 203 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

With the expiry of the 1945 Agreement, the Commonwealth Parliament in 1956 passed the Housing Agreement Act providing 'financial assistance to the States for the purpose of housing' for a period of five years ending on 30 June 1961. The complementary State legislation authorising the State Government to enter into the Agreement is the Commonwealth and State Housing Agreement Act of 1956.

The 1956 Agreement required that, for the first two years of its operation, at least 20 per cent of the money allocated to the State was to be advanced to building societies and other approved institutions for lending to private persons for the building or purchase of homes, the proportion to be increased to not less than 30 per cent during the remainder of the period. The balance of the allocation was to be used by the State for the erection of houses for either rental or sale. The Commonwealth was entitled to specify that of this balance a portion not exceeding 5 per cent in any one year should be set aside for the erection of houses for serving members of the defence forces. The Commonwealth provided supplementary advances to the State equal to the amounts set aside for this purpose.

On the introduction of the 1956 Agreement, the State Housing Commission adopted the policy of offering for sale before occupancy one-half of the total number of houses built, the remainder being made available on a rental basis. The proportion has since been varied several times.

Under the provisions of Commonwealth and State legislation passed in 1961 the period of operation of the Commonwealth and State Housing Agreement was extended for a further five years to 30 June 1966. The 1961 Agreement incorporated all the main features of the earlier arrangement, with only minor modifications. The requirement that building societies and other approved institutions should receive at least 30 per cent of moneys allocated to a State was continued. Provision was made for the use of funds in excess of the previous maximum of 5 per cent of the balance for the erection of dwellings for members of the defence forces. Supplementary advances by the Commonwealth of amounts equal to the funds so used were continued.

In terms of the *Housing Agreement Act* 1966 (Commonwealth) and the *Commonwealth and State Housing Agreement Act, 1966* (State) the operation of the Agreement, with minor amendments, has been extended until 30 June 1971.

Although Agreements subsequent to that of 1945 make no provision for rebates to tenants unable to pay the full rental, the State Government has continued the system and the cost of rental rebates was $484,216 in 1968-69.

Other Functions. The State Housing Commission conducts certain other housing schemes and has completed, or is currently engaged on, other specific projects on behalf of the State Government. Under a 'Departmental Homes' scheme, which commenced in 1952-53, 1,424 houses were built in the period to 30 June 1969 for Government Departments and semi-government authorities. A Government Employees' Housing Scheme was introduced in 1958-59 and, up to 30 June 1964, had provided 107 rental houses in country areas. (See also the following section *Government Employees' Housing Authority*.) The Commission has also undertaken the erection of flats for occupation by widows and by aged women pensioners, as well as cottage flats for aged married couples. Design and supervision services have been made available free of cost to several private charitable organisations which are developing pensioner housing schemes financed jointly by these organisations and the Commonwealth Government under the *Aged Persons Homes Act* 1954-1969 (Commonwealth). The Commission has also been made responsible from time to time for special housing schemes for industry or major developmental projects.

Operations of The State Housing Commission

In this section, a summary of the activities of The State Housing Commission is given. The first table on page 221 shows the number of housing units completed by the Commission in various categories during each year from 1964-65 to 1968-69. It also shows the numbers of housing units in connection with which the Commission provided design and supervisory services free of cost to private charitable organisations.

THE STATE HOUSING COMMISSION—DWELLINGS CONSTRUCTION

Category	1964–65	1965–66	1966–67	1967–68	1968–69
Housing units (*a*) completed—					
State Housing Act	887	957	560	390	539
Commonwealth and State Housing Agreements	692	995	698	824	936
Departmental Homes—					
Native Welfare Department	92	76	82	73	60
Other Departments	106	79	113	74	128
Government Employees' Housing	31	34	49	34	52
Shire Building Scheme (*b*)	....	....	....	....	2
War Service Homes	174	118	143	141	138
Other (*c*)	52	36	111	8	....
Total	2,034	2,295	1,756	1,544	1,855
Other activities (*d*)	97	185	20	13	8

(*a*) Comprises houses and individual flat units. (*b*) For local government employees. (*c*) Comprises houses built by the Commission in terms of the *Laporte Industrial Factory Agreement Act, 1961-1965*, the *Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, 1960*, the Exmouth Development Scheme and Project Development (Special Agreements Scheme). (*d*) The figures shown represent housing units built by charitable organisations in connection with which the Commission provided design and supervisory services.

THE STATE HOUSING COMMISSION
REVENUE, EXPENDITURE AND FUNDS EMPLOYED
($'000)

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
Revenue—					
Rentals	5,270	5,555	6,334	6,629	7,000
Profit on sale of—					
Houses and land	519	1,700	2,375	5,830	3,820
Sundry assets	4	6	3	7	3
Interest—					
Home purchase	2,688	3,079	4,252	4,731	5,319
Other	6	4	5	8	15
Recoup of management expenses	938	1,035	1,167	1,270	1,396
Fees and miscellaneous	436	328	449	337	408
Total Revenue	9,861	11,707	14,585	18,812	17,961
Expenditure—					
Interest—					
Loan capital	3,943	4,108	5,338	5,662	6,078
Debentures	208	302	381	502	592
Loan repayment	643	683	741	789	832
Management expenses	1,825	1,992	2,331	2,410	2,730
Rental outgoings	1,669	1,871	1,995	2,267	2,579
Other	25	71	108	89	58
Total Expenditure	8,313	9,027	10,894	11,719	12,869
Surplus	1,548	2,680	3,691	7,093	5,092
Funds employed at 30 June—					
Loan indebtedness—					
Government advances	135,822	142,914	153,496	165,414	179,592
Debenture issues	5,283	6,585	8,087	9,920	11,502
Commonwealth special grants	3,824	3,824	3,824	5,047	4,986
Accumulated surpluses and reserves	7,361	10,084	13,858	21,087	26,343
	152,290	163,407	179,265	201,468	222,423

Government Employees' Housing Authority

The Government Employees' Housing Authority is established under the provisions of the *Government Employees' Housing Act, 1964* to provide adequate and suitable housing accommodation for employees of State Government Departments to which the Act applies.

The Authority is empowered to enter into an agreement with the State Housing Commission whereby the Commission shall act as its agent upon such terms as may be mutually agreed upon by the Authority and the Commission.

War Service Homes

Under the *War Service Homes Act* 1918-1968 the Commonwealth Government provides assistance in acquiring a home to persons who satisfy the eligibility conditions set out in the Act. Persons eligible for assistance include members of the Australian Forces

and nursing services enlisted or appointed for or employed on active service outside Australia or on a ship of war during the first and second World Wars, or who served in the war-like operations in Korea or Malaya, or who have served on ' special service ' as defined in the *Repatriation (Special Overseas Service) Act* 1962-1968 (*e.g.* South Vietnam). The categories of eligible persons also include the widow of an eligible person and, in certain circumstances, the widowed mother of a deceased eligible person and members of the mercantile marine service.

The State Housing Commission acts as the representative in Western Australia of the Director of War Service Homes.

WAR SERVICE HOMES SCHEME—OPERATIONS IN WESTERN AUSTRALIA

Year	Homes provided during year				Total homes provided from inception to end of year	Annual expenditure	Instalments paid	Loans repaid
	By erection	By purchase	By discharge of mortgage	Total				
	No.	No.	No.	No.	No.	$'000	$'000	No.
1964-65	175	531	179	885	25,574	6,500	6,751	543
1965-66	119	478	130	727	26,301	5,310	6,672	494
1966-67	144	359	112	615	26,916	4,509	7,512	632
1967-68	142	262	83	487	27,403	3,520	7,561	571
1968-69	138	240	108	486	27,889	3,750	8,280	727

State Housing Death Benefit Scheme Act. The *State Housing Death Benefit Scheme Act, 1965* establishes, with effect from 20 February 1965, a scheme to provide benefits for the families of purchasers of dwellings who die leaving unpaid the whole or part of a liability to the State Housing Commission under a contract of sale or mortgage. The benefit is applied to the credit of the deceased purchaser's account, and the instalments payable during the unexpired term of the loan are reduced accordingly.

In the first year of operation (1965-66), twenty claims were admitted and a total of $27,200 was paid in the form of assistance to purchasers. The corresponding figures for 1966-67 were thirty-three and $30,922, for 1967-68, thirty-four and $25,385, and for 1968-69, twenty-five and $23,000, respectively.

Additional details of the scheme are given on page 204 of the *Western Australian Year Book*, No. 8—1969 and in earlier issues.

Housing Loan Guarantee Act

The purposes of the *Housing Loan Guarantee Act, 1957-1968* are to encourage, through provisions for guarantees and indemnities, the building and the purchasing of new houses. Under this Act, the Government provides guarantees to lenders of funds to Building Societies and other approved financial organisations making advances to persons desiring to purchase or build their own home on low deposits.

The maximum rate of interest which an approved institution may charge on a loan to a borrower is 6¾ per cent (December 1969). In the metropolitan region loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed $10,000, the maximum loan being $10,000. Outside the metropolitan region and south of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed $11,000, with a maximum loan of $10,000. North of the 26th parallel, loans may be made up to 95 per cent of the value of the house and land provided that the value of the house alone does not exceed $17,500. The maximum loan permitted is $13,000.

Complementary action has been taken by the Commonwealth in establishing the Housing Loans Insurance Corporation to foster high-ratio loans (see following section).

Housing Loans Insurance Scheme

The Housing Loans Insurance Corporation was established by the *Housing Loans Insurance Act* 1965 (Commonwealth) to insure approved lenders against losses arising from the making of housing loans. The Corporation consists of a chairman (who is also managing director) and a deputy chairman, who are full-time members, and three part-time members, all of whom are appointed by the Governor-General. The main purpose of the activities of the Housing Loans Insurance Corporation is to assist people to obtain, as a single loan and at a reasonable rate of interest, the money they need and can afford to borrow to obtain a home suited to their requirements.

To encourage the making of high-ratio loans the Corporation will insure loans up to 95 per cent of valuation for houses, or 90 per cent for home units, where the loan does not exceed $15,000. Where the loan exceeds $15,000 the maximum insurable amount is 90 per cent of the valuation. A once-and-for-all premium of 1½ per cent of the amount of the loan is charged by the Corporation for loans of from 80 per cent to 95 per cent of valuation. For loans below 80 per cent of valuation, lesser premium rates apply. The premium is payable by the borrower, but lenders may agree to add it to the amount of the loan for repayment by the borrower over the duration of the loan. The maximum rate of interest that may be charged on insured loans (December 1969) is 7¾ per cent per annum and the maximum period for repayment is forty years for houses, or twenty-five years for home units. The maximum rate of interest is kept under continuing review and may be varied by the Corporation, with the concurrence of the Minister for Housing, whenever changes appear to be warranted by movements in interest rates generally.

The Housing Loans Insurance Corporation insures loans that are made for a wide range of purposes in addition to the purchase or construction of a dwelling. The other purposes include alterations, extensions or improvements to a dwelling, and the provision or improvement of roads, kerbing and footpaths. An insured loan may be made only by an approved lender. Approved lenders are appointed by the Corporation from within approved classes of lenders specified by the Minister for Housing. The approved classes include banks, building societies, co-operative housing societies, friendly societies, life insurance companies, general insurance companies, trustee companies, and solicitors' and superannuation funds. The Housing Loans Insurance Corporation commenced its insurance operations in November 1965 and to 30 June 1969 had insured loans in Western Australia amounting to $33·8 million (net).

HOUSING LOANS INSURANCE CORPORATION
LOANS INSURED IN WESTERN AUSTRALIA

Purpose of loan	1965–66		1966–67		1967–68		1968–69	
	Number	$'000	Number	$'000	Number	$'000	Number	$'000
Houses—								
For building a new unit	6	55	57	589	162	1,828	334	4,181
For purchase of a new unit	1	7	61	585	286	2,963	588	7,356
For purchase of a used unit	17	109	107	911	281	2,658	448	5,033
For discharge of mortgage	....	....	7	46	17	199	13	141
Home units—								
For purchase of a new or used unit or discharge of mortgage	....	....	....	....	11	108	62	652
Other	....	....	....	....	15	184	38	482
Total	24	171	232	2,130	772	7,940	1,483	17,845

Homes Savings Grants

The *Homes Savings Grant Act* 1964-1967 (Commonwealth), which came into operation on 28 May 1964, is designed to 'assist young married persons, and young widowed persons with dependent children, to purchase or build their own homes'. The Act is administered, subject to any directions of the Minister, by the Secretary to the Department of Housing.

The Act provides for the payment to eligible persons of a grant of $1 for every $3 saved for a home by one or both of the marriage partners. The grant takes the form of a gift free of tax and is payable in respect of a house, a home unit or a flat. The maximum benefit is $500 payable on savings of $1,500 which must be 'acceptable' savings within the meaning of the Act.

To qualify for the grant a person must be married or a widowed person with one or more dependent children; must have lived and saved in Australia for at least three years or was an Australian citizen throughout that period; must, on or after 2 December 1963, have entered into a contract to buy a home or to have a home built, or have begun to build a home; must be under thirty-six years of age at the date of marriage and at the date of entering into a contract to buy or build the home or at the date on which building began; must not have already received a grant and must not be, nor previously have been, married to a person who has received a grant during the marriage. An undischarged bankrupt or a person serving a term of imprisonment may not receive a grant.

The grant is not payable in respect of a home where the cost, including the cost of land, exceeds $15,000.

Grants are financed from the National Welfare Fund and the first payments were made during the year ended 30 June 1965. Expenditure on grants in Western Australia amounted to $698,698 in 1964-65, $761,652 in 1965-66, $666,181 in 1966-67, $739,967 in 1967-68 and $759,890 in 1968-69.

CONTROL OF BUILDING

Each of the local government authorities as constituted under the provisions of the *Local Government Act, 1960-1969* has power to exercise general control over the erection of buildings in its own district. The powers of local government authorities to control building derive from the Town Planning and Development Act and the Local Government Act.

The *Town Planning and Development Act, 1928-1969* gives local authorities the right to make by-laws covering such aspects of town planning as the purchase or reservation of land for thoroughfares, the density of dwelling accommodation per acre, the classification of areas for residential, commercial, industrial and recreational use, the prescription of building standards, and the general planning of new subdivisions. Town planning measures proposed by a local authority are subject to the approval of the Minister for Town Planning, who has the advice of a Town Planning Commissioner and a Town Planning Board.

The *Local Government Act, 1960-1969* contains provisions for the control of building which are compatible with those exercised under the Town Planning and Development Act but are in a more detailed form. Many local government authorities have adopted comprehensive by-laws relating to building construction, and the erection of all buildings must be carried out in compliance with these by-laws. The Local Government Act provides that no new building or the alteration of an existing building may be begun before the plans have been approved by the local authority. The Governor may by Order, at the request of a local authority, suspend the operation of this provision in its district. Generally, in remote parts of the State prior approval of plans is required only in the case of building in townsite areas. Where any local authority refuses to approve plans, the Act provides that an appeal may be made to the Minister for Local Government, who has the power to modify or reverse the decision of the local authority. Other appeals or matters in dispute in relation to the control of building may be determined only by two referees, one of whom is appointed by the Governor and the other by the local authority concerned.

BUILDING OPERATIONS

Since the end of the second World War, the Australian Statisticians have undertaken a quarterly collection of statistics of building operations. The first of these collections in Western Australia related to the quarter ended 30 September 1945.

The survey covers the activities of building contractors who undertake the construction of new buildings; the building operations of Commonwealth, State, semi-government and local government authorities; and work performed by owner-builders.

The statistics in succeeding pages relate only to the erection of buildings as distinct from the construction of railways, bridges, earthworks, etc.

In the following table the value of new buildings completed, classified according to the function each building is intended to serve, is shown for the period 1964-65 to 1968-69. The values shown for each type of building exclude the value of land and represent the estimated value of the buildings on completion.

VALUE OF NEW BUILDINGS COMPLETED: TYPE OF BUILDING
($'000)

Type of building	1964–65	1965–66	1966–67	1967–68	1968–69
Houses—					
Material of outer walls—					
Brick, brick veneer, concrete, stone	47,094	46,895	61,942	79,812	110,796
Wood (weatherboard, etc.)	148	107	107	115	69
Fibro-cement	9,700	10,822	14,985	17,147	21,865
Other	296	265	1,044	295	546
Total, Houses	57,238	58,089	78,078	97,370	133,276
Flats	9,046	9,096	9,322	12,577	22,406
Total, Houses and flats	66,284	67,185	87,400	109,947	155,682
Other new buildings—					
Hotels, hostels, etc.	2,744	3,211	4,990	8,759	11,417
Shops	2,890	4,860	7,692	5,079	4,052
Factories	6,816	9,631	9,841	15,061	15,845
Office premises	2,820	10,576	7,093	14,608	10,885
Other business premises	5,102	6,999	7,150	6,809	12,574
Education	8,044	8,459	10,477	12,051	14,122
Religion	1,300	965	1,147	683	1,644
Health	3,076	7,415	8,927	3,436	7,373
Entertainment and recreation	1,952	2,247	3,080	3,670	3,848
Miscellaneous	6,072	8,630	14,338	15,299	17,391
Total, Other new buildings	40,816	62,993	74,735	85,456	99,152
TOTAL, ALL NEW BUILDINGS	107,100	130,178	162,135	195,403	254,833

The following table shows the number of new houses and flats completed, according to ownership, in each of the five years 1964-65 to 1968-69. A building is classified as 'private' or 'government' according to ownership at date of commencement. Thus 'government' includes buildings erected for Commonwealth and State Governments, semi-government and local government authorities, either by contractors or by day labour, whether these buildings are for their own use or for rental or sale after completion. Houses erected for private ownership, or which are financed or supervised by government authorities but erected for particular persons, are classified as 'private'.

NUMBER OF NEW HOUSES AND FLATS COMPLETED ACCORDING TO OWNERSHIP

Year	Private ownership (*a*)			Government ownership (*a*)			Total		
	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats	Houses	Flats	Houses and flats
1964–65	5,612	1,826	7,438	1,833	15	1,848	7,445	1,841	9,286
1965–66	5,228	1,547	6,775	2,037	77	2,114	7,265	1,624	8,889
1966–67	6,676	1,730	8,406	1,596	12	1,608	8,272	1,742	10,014
1967–68	8,533	2,382	10,915	1,325	10	1,335	9,858	2,392	12,250
1968–69	11,007	3,337	14,344	1,833	154	1,987	12,840	3,491	16,331

(*a*) See letterpress preceding table.


New Houses and Flats Completed, 1959-60 to 1968-69
HOUSES AND FLATS
HOUSES
FLATS
thousand
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
1959-60
1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
1967-68
1968-69

As an indication of the distribution of building activity throughout the State, the number of new houses completed in each Statistical Division during 1964-65 to 1968-69 is shown in the following table.

NUMBER OF NEW HOUSES COMPLETED IN STATISTICAL DIVISIONS

Statistical Division	1964–65	1965–66	1966–67	1967–68	1968–69
Perth Statistical Division	5,473	5,098	5,330	6,812	9,246
Other Divisions—					
South-West	597	687	696	820	834
Southern Agricultural	326	334	387	359	384
Central Agricultural	319	354	360	367	407
Northern Agricultural	351	367	491	513	659
Eastern Goldfields	156	121	223	382	489
Central	18	25	14	11	14
North-West	62	107	277	110	61
Pilbara	18	72	401	423	623
Kimberley	125	100	93	61	123
Total	1,972	2,167	2,942	3,046	3,594
WESTERN AUSTRALIA	7,445	7,265	8,272	9,858	12,840

A further measure of building activity is that of ' value of work done ' which is the estimated value of work actually carried out on buildings during the period. For any building, the sum of these values obtained during its construction equals the value of the building on completion. The figures in the following table include estimates for the value of work done on owner-built houses.

VALUE OF WORK DONE ON NEW BUILDINGS
($'000)

Type of building	1964–65	1965–66	1966–67	1967–68	1968–69
Houses and flats—					
Houses	58,138	60,866	80,719	105,991	137,168
Flats	9,916	8,033	11,056	15,328	29,219
Total, Houses and flats	68,054	68,899	91,775	121,319	166,386
Other new buildings—					
Hotels, hostels, etc.	2,490	3,677	6,551	11,620	10,425
Shops	4,744	5,918	4,417	4,750	5,234
Factories	7,306	10,125	10,122	16,593	15,334
Office premises	7,572	7,890	9,293	13,246	15,111
Other business premises	6,018	6,326	7,055	8,598	13,499
Education	7,982	8,879	11,183	13,494	12,436
Religion	994	1,122	1,015	981	1,255
Health	7,284	6,146	5,774	5,897	7,871
Entertainment and recreation	1,974	2,247	3,379	3,904	4,463
Miscellaneous	8,558	12,254	13,162	12,034	17,994
Total, Other new buildings	54,922	64,584	71,951	91,118	103,625
TOTAL, ALL NEW BUILDINGS	122,976	133,483	163,726	212,437	270,012

Employment in Building

Details of building employment are given in the following table. The figures shown relate to persons working on the jobs of contractors who undertake the erection of new buildings and on the jobs of government authorities which erect new buildings on their own account. They include persons actually engaged on alterations, additions, repairs, and maintenance when these jobs are undertaken by such contractors and authorities. The figures also include the number of persons working on new private buildings (other than houses) erected without the services of a contractor responsible for the whole job.

Informants are asked to supply details of all persons employed on their jobs *on a specified day*, including working principals, men working as or for sub-contractors, and men temporarily laid off on account of weather. Because of the intermittent employment of

various types of sub-contractors on any particular job, it is sometimes difficult for informants to provide precise particulars of the number of sub-contractors and sub-contractor employees working on their jobs on the specified day. This factor may cause some understatement in the figures shown in the tables. In other cases, because of frequent movement between jobs of some types of tradesmen (such as electricians) who may work on several jobs on the one day, some duplication may occur.

The figures *exclude* persons working on owner-built houses, and employees of building firms which undertake only alterations, additions, repairs, and maintenance.

EMPLOYMENT IN BUILDING (*a*)

Classification	End of June—				
	1965	1966	1967	1968	1969
Occupational status—					
Contractors	576	574	639	697	697
Sub-contractors	2,451	1,881	2,539	2,882	3,731
Wage earners	9,609	9,893	11,327	13,233	14,773
Total	12,636	12,348	14,505	16,812	19,201
Occupation—					
Carpenters	3,573	3,591	4,026	4,569	5,007
Bricklayers	1,546	1,584	1,966	2,469	2,954
Painters	1,195	1,105	1,341	1,494	1,723
Electricians	886	825	1,014	1,126	1,373
Plumbers	1,164	1,064	1,275	1,577	1,711
Builders' labourers	1,982	2,047	2,210	2,602	2,978
Other	2,290	2,132	2,673	2,975	3,455
Total	12,636	12,348	14,505	16,812	19,201

(*a*) See letterpress preceding table.

DWELLINGS COMPLETED IN AUSTRALIA

The following table shows the numbers of new houses and flats completed in each of the Australian States and Territories during the year 1968-69. In Western Australia the number of new houses and flats completed per thousand of mean population was 17·58, compared with 10·17 in the rest of Australia and 10·74 in Australia as a whole. The proportion of houses to flats completed in Western Australia was 3·7:1, and throughout Australia 2·3:1.

NEW HOUSES AND FLATS COMPLETED—AUSTRALIAN STATES AND TERRITORIES
1968–69

State or Territory	Houses	Flats (*a*)	Houses and flats (*a*)		
			Total number completed	Proportion of Australian total (per cent)	Per thousand of mean population
New South Wales	28,794	16,362	45,156	34·55	10·19
Victoria	22,731	13,775	36,506	27·93	10·88
Queensland	14,268	2,863	17,131	13·11	9·78
South Australia	6,954	1,741	8,695	6·65	7·66
Western Australia	12,840	3,491	16,331	12·50	17·58
Tasmania	2,704	366	3,070	2·35	7·96
Northern Territory	740	469	1,209	0·93	18·15
Australian Capital Territory	2,515	74	2,589	1·98	22·05
AUSTRALIA	91,546	39,141	130,687	100·00	10·74

(*a*) Individual living units.

Chapter V—continued

Part 5—Social Benefits, Pensions and Welfare Services

NOTE. The rates and the conditions applying to payment of the several benefits dealt with in this Part are described as they existed at 31 December 1969.

The information given is intended to serve as a general guide to the main provisions relating to social benefits and relief payments provided by the Commonwealth and State Governments. For more complete details of the Commonwealth benefits, reference should be made to the *Official Year Book of the Commonwealth of Australia.*

Social benefits are provided by the Commonwealth Government under a series of Acts, and their payment is financed from a National Welfare Fund. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year by transfer from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

War and service pensions are paid by the Commonwealth Government from the Consolidated Revenue Fund.

The *Social Services Act* 1947-1969 provides for the payment of age and invalid pensions, widows' pensions, unemployment, sickness, and special benefits, maternity allowances and child endowment; the *Repatriation Act* 1920-1969, for war pensions and service pensions; and the *Tuberculosis Act* 1948, for allowances to sufferers from tuberculosis as well as assistance to the States in a national campaign against the disease.

Health services, such as medical, hospital and pharmaceutical benefits, are provided under the *National Health Act* 1953-1969.

War pensions, child endowment, maternity allowances and health service benefits, other than tuberculosis allowances, are paid regardless of income received from other sources or of property owned by the claimant. These payments do not affect eligibility for other social services benefits.

Age and invalid pensions (other than pensions paid to blind persons), widows' pensions and service pensions are subject to a means test in respect of both income and property. Only income is taken into account in assessing eligibility for unemployment and sickness benefits or tuberculosis allowances. Generally, a person receiving a pension or an allowance under one category is ineligible for benefit under any other.

Under the provisions of legislation passed in 1963 and 1964 certain allowances payable on account of children were extended to include 'student' children. For the purposes of the *Social Services Act* 1963 and the *Repatriation Act* 1963 the term ' student child ' meant a dependent child aged between sixteen and eighteen years receiving full-time education at a school, college or university, and the allowance continued until the end of the calendar year in which the child attained the age of eighteen years. The Acts made provision for payment in respect of student children of age pensioners, invalid pensioners, widow pensioners and service pensioners. The benefit was extended to include also student children of recipients of tuberculosis allowances. The *Social Services Act* 1964 provides for the payment of child endowment on account of students until the twenty-first birthday.

In terms of amendments made to the Social Services Act and the Repatriation Act in 1965, the payment of allowances in respect of student children, which previously ceased at the end of the calendar year in which the child attained the age of eighteen years, was extended until the twenty-first birthday.

The State Government makes certain payments for the relief of women and others in necessitous circumstances which in most cases supplement benefits provided by the Commonwealth Government.

SOCIAL SERVICES BENEFITS

Age and Invalid Pensions

Age pensions were first paid on 1 July 1909 and invalid pensions on 15 December 1910. Pensions are payable subject to a means test which does not, however, apply to pensions paid to persons who are permanently blind.

The age pension is payable to men aged sixty-five years and over and to women aged sixty years and over who have resided in Australia continuously for at least ten years, which need not be immediately prior to the date of claim for a pension. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

Invalid pensions are payable to persons aged sixteen years and over who have resided in Australia for a continuous period of not less than five years (including certain absences), and are permanently incapacitated for work to the extent of at least 85 per cent or are permanently blind. If the incapacity or blindness first occurred outside Australia, except during a temporary absence, a period of not less than ten years' continuous residence is necessary. If a person has not completed ten years' continuous residence but has been so resident for a period of not less than five years, the period of ten years' continuous residence otherwise required is reduced by the total of his periods of residence in excess of ten years. Residence in New Zealand or the United Kingdom may be treated as residence in Australia. Certain absences do not affect eligibility.

AGE AND INVALID PENSIONS—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of pensioners at 30 June—					
Age—					
Males	12,467	12,596	13,020	13,796	14,724
Females	29,352	30,110	30,856	31,945	34,126
Persons	41,819	42,706	43,876	45,741	48,850
Invalid—					
Males	4,719	4,911	4,817	4,641	4,682
Females	3,587	3,704	3,758	3,666	3,628
Persons	8,306	8,615	8,575	8,307	8,310
	$	$	$	$	$
Average weekly pension at 30 June (*a*)—					
Age	10.68	11.11	11.26	12.30	12.09
Invalid	11.23	11.71	12.18	13.30	13.36
	$'000	$'000	$'000	$'000	$'000
Amount paid during year (*b*)	27,373	29,413	30,760	33,794	36,418

(*a*) Includes allowances and supplementary assistance. (*b*) Includes amounts paid to benevolent homes for maintenance of pensioners and to pensioner inmates of these homes. Includes also allowances and supplementary assistance.

The maximum rate of pension payable to an unmarried person (*i.e.* single, widowed or divorced) is $15 per week. This rate applies also to a married pensioner where the spouse is not receiving an age or invalid pension, a tuberculosis allowance or a service pension. In the case of a married couple, both of whom are pensioners, the maximum weekly

rate is $13.25 for each pensioner. A wife's allowance may be granted, subject to the means test, to the wife of an invalid pensioner or of an age pensioner permanently incapacitated or blind, or if she has the care of a child and is not receiving an age or invalid pension, or a service pension. The maximum weekly rate of a wife's allowance is $7. The pension may also be increased by $2.50 per week, subject to the means test, for the first child under sixteen years of age and $3.50 per week for each other such child. These allowances apply also to student children of a pensioner. A guardian's allowance is payable to widowers and other unmarried age or invalid pensioners who have one or more children in their care. The maximum weekly rate of the allowance is $4, which may be increased to $6 where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention.

If the pensioner pays rent and is entirely or substantially dependent on the pension, supplementary assistance to a maximum of $2 per week, subject to a means test, may be paid to a single pensioner or to a married pensioner whose spouse does not receive a pension or tuberculosis allowance.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

Rehabilitation Service. Since 10 December 1948 a rehabilitation service has been provided for invalid pensioners and others whose disabilities are remediable and who have reasonable prospects of engaging in a suitable vocation within three years. With the aim of restoring disabled persons to independence and usefulness, the service provides the necessary treatment and training together with books, tools and equipment. Rehabilitation and training allowances are paid.

The *Social Services Act* 1968, operative from 27 September 1968, provides for a scheme of vocational training for Class ' A ' and Class ' B ' widow pensioners (see letterpress *Widows' Pensions* below). In addition to her pension, a trainee receives a training allowance of $4 per week and, where appropriate, a living-away-from-home allowance not exceeding $5 per week. Tuition fees and fares to and from the place of training are paid for under the scheme, and books and other necessary equipment are provided.

Funeral Benefit. From 1 July 1943, a funeral benefit of up to $20 has been payable to persons who are required to meet the funeral expenses of an age or invalid pensioner. This benefit is increased to a maximum of $40 where a person receiving either an age, invalid or widow's pension, or a wife's allowance, is required to meet the funeral expenses of another pensioner or those of a non-pensioner spouse or dependent child.

Widows' Pensions

Widows' pensions have been paid since 30 June 1942 and are granted subject to a means test and certain residential qualifications. The term ' widow ' is extended to include deserted wives, divorcees and women who have been deprived of support by the insanity or imprisonment of the husband.

Pensions and allowances payable to widows vary according to classes designated ' A ', ' B ' and ' C ' in terms of the Social Services Act. To qualify for pension under Class ' A ' a widow must have the custody, care and control of one or more children who may be either less than sixteen years of age or student children as defined in the Act. The maximum rate of pension is $21.50 per week (including a mother's allowance of $4 per week, and $2.50 per week in respect of the first child). An additional allowance of $3.50 per week is payable for each child other than the first. The mother's allowance may be increased to $6 per week where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention. A Class ' B ' pensioner is one who has not the custody, care and control of any child under sixteen years of age (or any student child) and who is at least

fifty years of age, or is not less than forty-five years of age when her Class 'A' pension ceases because she no longer has a child in her custody, care and control. The maximum rate of pension payable is $13.25 per week. A Class 'C' pensioner is a widow who, at the time of her husband's death or within twenty-six weeks thereafter, is less than fifty years of age, has not the custody, care and control of any child under sixteen years of age (or any student child), and is in necessitous circumstances. Pension at the rate of $13.25 per week may be paid for a period of twenty-six weeks immediately after the husband's death but, if the widow is pregnant, may be continued until the birth of the child, when she may qualify for a Class 'A' pension.

A widow pensioner who pays rent and is considered to be entirely or substantially dependent on her pension may, subject to a means test, receive supplementary assistance up to a maximum of $2 per week.

The rate of pension is reducible by the application of a means test in respect of income and property which, for the purposes of assessment, excludes the pensioner's home, furniture, car, personal effects and some other specified assets.

WIDOWS' PENSIONS—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of pensions current at 30 June—					
Class 'A' pensioners (*a*)	2,120	2,221	2,288	2,333	2,520
Class 'B' pensioners (*b*)	2,607	2,692	2,775	2,885	2,950
Class 'C' pensioners (*c*)	7	13	8	10	12
Total	4,734	4,926	5,071	5,228	5,482
Average weekly pension at 30 June (*d*)	$ 13.40	$ 13.78	$ 13.97	$ 15.43	$ 15.33
Amount paid during year (*d*)	$'000 3,115	$'000 3,463	$'000 3,602	$'000 4,011	$'000 4,346

(*a*) Widow having custody, care and control of one or more children aged less than 16 years, or of a student child or children. (*b*) Widow aged 50 years or over with no dependent children. (*c*) Widow, other than Class 'A' or 'B', in necessitous circumstances following death of husband. (*d*) Includes allowances and supplementary assistance.

Unemployment, Sickness and Special Benefits

Payments to persons unemployed or temporarily incapacitated for work by sickness or accident were introduced on 1 July 1945 and are subject to residential qualifications and a means test in respect of income but not of property. Unemployment and sickness benefits are paid to males over sixteen and under sixty-five years of age and to females over sixteen and under sixty years of age.

The maximum weekly rate of benefit for an unmarried claimant over twenty-one years of age is $10 per week. For unmarried juveniles, the rate is $4.50 for those aged under eighteen years and $6 for those aged eighteen and under twenty-one years. A married claimant with dependent spouse may receive $17 per week, with an additional $2.50 per week for the first dependent child under sixteen years of age and $3.50 per week for each other such child. Benefits are reducible in accordance with a means test in respect of income. For unemployment benefit purposes, the incomes of both husband and wife are taken into account. For sickness benefit purposes, any payment received on account of the sickness from an approved friendly society or similar body is disregarded. A married woman is not eligible to receive a sickness benefit if it is reasonably possible for her husband to maintain her. Where her husband is able to maintain her only partially a benefit may be paid at such rate as is considered reasonable in the circumstances. There is a waiting period of seven days, during which time neither unemployment nor sickness benefit is payable, but this waiting period is not required to be served more than once in any period of thirteen weeks.

Special benefits have been provided since 1 July 1945. A special benefit may be granted to a person not qualified for unemployment or sickness benefit and who receives no Commonwealth pension if, on account of age, physical or mental disability or for any other reason, he is unable to earn a sufficient livelihood for himself and his dependants. Special benefits are also paid to migrants who are in accommodation centres and are awaiting their first placement in employment. The maximum rate for special benefit is the same as for unemployment or sickness benefit.

UNEMPLOYMENT, SICKNESS AND SPECIAL BENEFITS—WESTERN AUSTRALIA

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Unemployment benefit—					
Number admitted to benefit during year	14,971	10,175	5,883	6,573	6,686
Average number on benefit at end of each week	2,677	1,679	785	718	608
Number on benefit at end of year—					
Males	1,360	503	389	387	391
Females	1,007	634	354	398	355
Persons	2,367	1,137	743	785	746
Sickness benefit—					
Number admitted to benefit during year	6,127	5,862	5,756	5,759	5,796
Average number on benefit at end of each week	866	832	752	729	677
Number on benefit at end of year—					
Males	623	581	544	436	463
Females	236	236	224	251	176
Persons	859	817	768	687	639
Special benefit(*a*)—					
Number admitted to benefit during year	101	84	78	69	133
Average number on benefit at end of each week	122	106	107	81	72
Number on benefit at end of year—					
Males	26	21	24	16	14
Females	86	78	76	54	96
Persons	112	99	100	70	110
	$'000	$'000	$'000	$'000	$'000
Benefits paid during year—					
Unemployment	1,403	842	368	374	304
Sickness	522	512	457	445	420
Special (*a*)	53	46	47	36	33
Total (*a*)	1,978	1,401	872	855	757

(*a*) Excludes special benefits to migrants in accommodation centres.

Rates of Pension and Unemployment and Sickness Benefits

The following tables show the maximum rates payable at 31 December of the years 1965 to 1969 in respect of age, invalid and widows' pensions, and unemployment and sickness benefits. The rates applying to certain allowances and other forms of assistance are also shown.

PENSIONS—MAXIMUM WEEKLY RATES
($)

Pension or allowance	At 31 December—				
	1965	1966	1967	1968	1969
Age and invalid pensions—					
Unmarried person	12.00	13.00	13.00	14.00	15.00
Married person	11.00	11.75	11.75	12.50	13.25
Wife's allowance	6.00	6.00	6.00	7.00	7.00
Guardian's allowance	4.00	4.00	4.00	4.00	(*a*) 4.00
Allowances for children—					
First child	1.50	1.50	1.50	2.50	2.50
Each other child	1.50	1.50	1.50	2.50	3.50
Supplementary assistance	2.00	2.00	2.00	2.00	2.00
Widows' pensions—					
Class 'A' (*b*)	17.50	18.50	18.50	20.50	(*a*)21.50
Classes 'B' and 'C'	10.75	11.75	11.75	12.50	13.25
Allowance for each child other than the first	1.50	1.50	1.50	2.50	3.50
Supplementary assistance	2.00	2.00	2.00	2.00	2.00

(*a*) The rate shown may be increased by $2 per week where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention. (*b*) The rates shown include mother's allowance ($4 per week) and allowance for one child.

UNEMPLOYMENT AND SICKNESS BENEFITS—MAXIMUM WEEKLY RATES
($)

Benefit	At 31 December—				
	1965	1966	1967	1968	1969
Unemployment and sickness benefits—					
Unmarried person—					
Aged 16 and under 18 years	3.50	3.50	3.50	3.50	4.50
Aged 18 and under 21 years	4.75	4.75	4.75	4.75	6.00
Aged 21 and over	8.25	8.25	8.25	8.25	10.00
Married person	8.25	8.25	8.25	8.25	10.00
Dependent spouse	6.00	6.00	6.00	6.00	7.00
Allowances for children—					
First child	1.50	1.50	1.50	1.50	2.50
Each other child	1.50	1.50	1.50	1.50	3.50

Maternity Allowances

Maternity allowance payments were introduced on 10 October 1912. The allowance is payable to a woman who, at the date of giving birth to a child (live or stillborn), is residing in Australia. There is no means test. Part of the allowance may be paid four weeks before the expected date of birth, and the balance immediately after the birth.

The allowance is $30 where there are no other children, $32 where the mother has one or two other children under sixteen years of age, or $35 where she has three or more other such children. The amount payable is increased by $10 for each additional child of a multiple birth.

MATERNITY ALLOWANCES—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of claims paid—					
Single births: amount of allowance—					
$30	5,275	5,451	5,698	6,447	6,909
$32	7,852	7,654	7,665	7,848	8,723
$35	3,680	3,389	3,232	3,006	3,149
Multiple births: amount of allowance—					
Twins—					
$40	48	42	48	56	65
$42	87	88	87	111	73
$45	45	43	31	41	48
Triplets—					
$50	....	....	1	....	....
$52	1	....	1	....	2
$55	....	....	1	1	....
Total number of claims paid	16,988	16,667	16,764	17,510	18,969
	$'000	$'000	$'000	$'000	$'000
Amount paid	546	534	536	559	605

Child Endowment

Child endowment was introduced on 1 July 1941. The payment of endowment is not subject to a means test. A person who is resident in Australia and has the custody, care and control of one or more children under the age of sixteen years, or of a student child or children, is qualified to receive endowment in respect of each child. Approved institutions of which children are inmates are similarly entitled.

At the inception of the scheme, the first child of a family was not endowed. From 20 June 1950 child endowment has applied in respect of the first or only child of a family at the rate of fifty cents per week. Endowment for the second child is at the rate of $1 per week, and for the third child, $1.50 per week. For each subsequent child the endowment increases progressively by twenty-five cents, so that the weekly rate payable for the fourth child is $1.75, for the fifth child $2, and so on. Endowment is payable to a person having the custody, care and control of a student child (or children) aged sixteen years but under

twenty-one years who is receiving full-time education at a school, college or university and is not in employment or engaged in work on his own account. Endowment is at the rate of $1.50 per week for each such child.

An approved institution is qualified to receive $1.50 per week in respect of each child (including student children) in its care.

CHILD ENDOWMENT—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Endowed families at 30 June—					
Number of claims in force in respect of—					
Children under 16 years of age	115,645	117,528	120,973	125,554	130,389
Student children (*a*)	7,386	8,248	8,092	9,517	10,106
Number of endowed children—					
Children under 16 years of age	272,356	275,978	282,827	291,705	302,516
Student children (*a*)	7,809	8,784	8,679	10,579	10,870
Average number of endowed children per claim—					
Children under 16 years of age	2·36	2·35	2·34	2·32	2·32
Student children (*a*)	1·06	1·06	1·07	1·11	1·08
Institutions at 30 June—					
Number of institutions	69	64	64	66	71
Number of endowed child inmates—					
Children under 16 years of age	3,554	3,664	3,707	3,923	3,976
Student children (*a*)	56	60	90	118	129
Total number of endowed children (*b*) at 30 June—					
In families	280,165	284,762	291,506	302,284	313,386
In institutions	3,610	3,724	3,797	4,041	4,105
Total (*b*)	283,775	288,486	295,303	306,325	317,491
	$'000	$'000	$'000	$'000	$'000
Amount paid during year (*c*) (*d*)	(*e*) 12,994	13,406	13,624	(*e*) 15,498	14,845

(*a*) Payment of endowment for student children aged 16 years but under 21 years has operated from 14 January 1964. (*b*) Includes student children; see note (*a*). (*c*) Includes payments to institutions. (*d*) A number of endowments are paid every 12 weeks. During two years in every three, there are four such payments each year, and five in the third year. (*e*) Expenditure in this year includes five 12-weekly payments; see note (*d*).

Reciprocal Arrangements with other Countries

Reciprocal arrangements in respect of payment of age and invalid pensions, widows' pensions, unemployment and sickness benefits and child endowment have been in force between the Governments of Australia and New Zealand since 1 July 1949 and between Australia and the United Kingdom since 7 January 1954.

WAR AND SERVICE PENSIONS

War Pensions

The *Repatriation Act* 1920-1969 provides for the payment of pensions to ex-servicemen (and ex-servicewomen) and their dependants in respect of disability or death accepted as due to war service.

For members of the forces who served outside Australia, or within Australia in circumstances which can be regarded as combat against the enemy, pensions are payable in respect of incapacity or death which may result from any occurrence during the whole period of service. If a member served only in Australia, incapacity or death to be pensionable must have been attributable to service. In all cases, providing a member had at least six months' camp service, a condition which existed at the time of enlistment may be pensionable if it is considered that the condition was aggravated by service. If, at any time after discharge, an ex-serviceman who served in a theatre of war becomes incapacitated or dies from pulmonary tuberculosis, war pension is payable as if the incapacity or death resulted from an occurrence on service.

The main classes of war pensions are the special (T.P.I.) rate, the intermediate rate, the general rate and the war widow's pension. The special rate of war pension, $36 per week, is payable to those who are totally and permanently incapacitated and are unable to earn more than a negligible percentage of a living wage. The intermediate rate of war pension, $26.50 per week, is payable to an ex-serviceman who, because of the severity of

a war-caused incapacity, can work only part-time or intermittently and, in consequence, is unable to earn a living wage. The wife of a pensioner receiving the special rate or the intermediate rate of war pension is paid $4.05 per week plus $1.38 per week for each child under sixteen years of age. The general rate of war pension is the rate payable to those who suffer war-caused disabilities but are not thereby prevented from working, although their earning capacity may be reduced. The actual pension payable is assessed in accordance with the degree of incapacity suffered. The maximum (100 per cent) rate is $12 per week. A wife and children also receive pensions at rates according to the assessed degree of incapacity of the ex-serviceman, the maximum being $4.05 per week for a wife and $1.38 per week for each child under sixteen years of age. A war widow's pension at the rate of $15 per week is paid to the widow of an ex-serviceman who died as a result of war service. Children under the age of sixteen years are pensionable at a weekly rate of $5.40 for the first child, and $4.25 for the second and each subsequent child. Where both parents are dead, pension at the rate of $10.15 per week is payable for each child under the age of sixteen years.

Provision is also made for the payment of certain allowances, among which are a domestic allowance, attendant's allowance, and allowances for clothing and recreation transport.

WAR PENSIONS (*a*)—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of pensions current at 30 June—					
Incapacitated ex-servicemen	19,273	19,253	19,188	19,038	18,849
Dependants of incapacitated ex-servicemen	33,540	32,366	31,016	29,532	28,008
Dependants of deceased ex-servicemen	4,197	4,262	4,317	4,356	4,300
Miscellaneous (*b*)	37	39	39	41	36
Total	57,047	55,920	54,560	52,967	51,193
	$'000	$'000	$'000	$'000	$'000
Amount paid in pensions during year (*c*)	11,564	11,447	12,637	11,889	11,934

(*a*) Including pensions in respect of ex-servicewomen. (*b*) Pensions payable under Seamen's War Pensions and Allowances Act, Interim Forces Benefits Act, Native Members of the Forces Benefits Act and various Cabinet decisions. (*c*) Includes widows' allowances.

Service Pensions

The payment of service pensions is provided for in the *Repatriation Act* 1920-1969 and has operated since 1 January 1936. A means test is applied in respect of income and property.

A service pension may be granted to a former member of the forces who is suffering incapacity from pulmonary tuberculosis, or who has served in a theatre of war (or, in the case of an ex-servicewoman, served abroad) and has attained the age of sixty years (or, in the case of an ex-servicewoman, fifty-five years) or is permanently unemployed.

SERVICE PENSIONS (*a*)—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of pensions current at 30 June—					
Ex-servicemen	6,103	6,181	6,187	6,086	6,041
Dependants of—					
Living service pensioners	1,262	1,181	1,131	1,130	1,069
Deceased service pensioners	389	417	437	456	472
Miscellaneous	....	1	2	2	4
Total	7,754	7,780	7,757	7,674	7,586
	$'000	$'000	$'000	$'000	$'000
Amount paid in pensions during year	3,177	3,320	3,571	3,612	3,777

(*a*) Including pensions in respect of ex-servicewomen.

The maximum weekly rate of pension payable to an ex-serviceman (or an ex-servicewoman) is $15. This rate applies to an unmarried person (*i.e.* single, widowed or divorced) or to a married person where the spouse is not receiving a Commonwealth pension or allowance. Where the spouse is receiving any such benefit the maximum rate is $13.25 per week. The maximum pension payable to the wife of an ex-serviceman is $7 per week. The rate for eligible children is $2.50 for the first child, and twenty-five cents for each additional child, up to and including the fourth child of the family. An eligible child is a child under sixteen years of age, or a child up to twenty-one years who is not receiving an invalid pension and is undergoing full-time education. The service pension of an ex-serviceman is increased by $3.50 per week for each eligible child, other than the first, whether or not such children qualify for pension in their own right.

A service pensioner who is unmarried, widowed, divorced, or married but separated, and who has care and control of one or more children, qualifies for a guardian's allowance. The maximum weekly rate of the allowance is $4, which may be increased to $6 where the pensioner has the custody, care and control of a child (or children) under six years of age, or an invalid child (or children) requiring full-time care and attention.

Supplementary assistance up to a maximum of $2 per week may be paid to an ex-serviceman who is paying rent, or for lodging, or board and lodging.

NATIONAL HEALTH SERVICES

The *National Health Act* 1953-1969 provides for expenditure from the National Welfare Fund in respect of a free general practitioner service to eligible pensioners and their dependants, and hospital, medical and pharmaceutical benefits to the community generally. Other services financed from the Fund are the nutrition of children by the free supply of milk, the payment of allowances to sufferers from tuberculosis, reimbursement to State Governments of maintenance expenditure in relation to the diagnosis, treatment and control of tuberculosis, and a number of miscellaneous health services.

Payments from the National Welfare Fund in respect of health services in Western Australia during the five-year period ended 30 June 1968 are shown on page 263.

Hospital and Nursing Home Benefits

The payment of hospital and nursing home benefits is authorised under Part V of the National Health Act. Benefits are payable only in respect of treatment received in approved hospitals and approved nursing homes. For the purposes of the National Health Act, premises which provide medical treatment, care and accommodation for sick persons are approved either as hospitals or as nursing homes depending mainly on their clinical standards and the type of patients accommodated. The basic principle of the provision of Commonwealth hospital benefits is the encouragement of voluntary insurance by individuals against the costs involved.

Payment of $2 per day is made by the Commonwealth for patients in approved hospitals who are contributors to a registered hospital benefit fund, the benefit being paid through the fund. Payment of eighty cents per day is made direct to the hospital for patients who are not contributors to a benefit organisation.

Under arrangements made with the States, pensioners who are enrolled in the Pensioner Medical Service and are treated in public wards of public hospitals are entitled (with a few exceptions) to free public ward treatment. For this the Commonwealth pays the hospitals a benefit of $5 per day for each pensioner.

Commonwealth benefit of $2 per day is paid for all qualified patients in approved nursing homes, whether the patient is insured or not. An additional benefit of $3 per day is payable for those patients in approved nursing homes who need and receive intensive nursing home care.

The following table shows the amounts of benefit paid in Western Australia during each financial year from 1963-64 to 1967-68, and the number and membership of registered benefit organisations at 30 June in each year. It should be noted that the total

number of persons covered by hospital benefit schemes is considerably higher than the number of members shown, as many members contribute on account of dependants as well as for personal benefits.

HOSPITAL BENEFITS—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Registered organisations—					
Number at 30 June	9	9	9	9	9
Membership at 30 June	260,663	267,694	279,192	288,232	292,803
Amount of benefit paid during year—					
Commonwealth benefit—	$'000	$'000	$'000	$'000	$'000
Insured patients	1,550	1,569	1,577	1,685	1,620
Uninsured patients	151	151	152	148	153
Pensioner patients	1,204	1,349	1,443	1,787	2,316
Nursing home patients	1,565	1,734	1,897	2,033	2,222
Special account deficits (*a*)	235	184	217	229	287
Total	4,705	4,987	5,286	5,882	6,598
Fund benefit	3,362	3,856	4,386	5,638	7,033

(*a*) Reimbursements paid to benefit organisations; see letterpress immediately following table.

A ' special account ' system was introduced on 1 January 1959 to provide an assured rate of hospital fund benefits to contributors who would otherwise have been excluded from fund benefits on account of organisations' rules covering pre-existing ailments, chronic illnesses and maximum fund benefit. The hospital fund benefit generally payable in such cases is $3 per day and is paid either from special accounts guaranteed by the Commonwealth or from the ordinary accounts of the organisations. One condition of payment is that the treatment in respect of which the fund benefit was paid was given in an approved hospital, although fund benefit is paid in certain circumstances in respect of treatment given in approved nursing homes. If the payments from special accounts exceed the contributions credited to the account, the amount of the deficit is reimbursed by the Commonwealth.

Australian residents who receive hospital treatment in recognised hospitals in overseas countries, while temporarily absent from Australia, are eligible to receive the Commonwealth and fund benefits to which they are entitled.

Medical Benefits

A Medical Benefits Scheme commenced to operate from 1 July 1953, being authorised under the National Health (Medical Benefits) Regulations. These regulations were superseded by the National Health Act. The basic principle of the scheme is the encouragement of voluntary insurance by individuals against the costs of medical attention. The scheme provides for the payment of benefits by the Commonwealth, through medical insurance organisations registered for the purpose. The Commonwealth benefits supplement the benefits paid by the registered organisations in respect of a proportion of the medical expenses, such as fees for medical and surgical treatment, incurred by members of those organisations and their dependants. Benefits provided by the Commonwealth are paid either on a fee-for-service basis or in the form of a subsidy representing a proportion of the payments made to medical practitioners by registered organisations under contract arrangements.

The Act was amended in 1958 to enable registered organisations to extend their payment of medical benefits by means of the special account system referred to in the preceding section. Medical fund benefits previously disallowed in cases of pre-existing disabilities and protracted illnesses have been paid from 1 January 1959 under the provisions of this amendment.

Australian residents who, while temporarily absent from Australia, receive medical attention by registered medical practitioners are entitled, if insured, to the Commonwealth benefit and the medical fund benefit to which they would be entitled if the service were rendered in Australia.

The following table shows the number of medical services rendered in Western Australia to members of medical benefit organisations and their dependants during each financial year from 1963-64 to 1967-68. The number of organisations and their membership at 30 June in each year are also shown. It should be noted that the total number of persons covered by medical benefit schemes is considerably higher than the number of contributors, as many members subscribe for benefits on account of dependants as well as for themselves.

MEDICAL BENEFITS—WESTERN AUSTRALIA

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Registered organisations—					
Number at 30 June	8	8	8	8	8
Membership at 30 June	247,192	254,440	268,719	279,373	284,463
	'000	'000	'000	'000	'000
Number of medical services received during year (*a*)—					
General practitioner services	1,416	1,395	1,463	1,536	1,594
Other	654	726	770	868	1,001
Total	2,070	2,121	2,233	2,404	2,594
Amount of benefit paid during year—	$'000	$'000	$'000	$'000	$'000
Commonwealth benefit—					
Ordinary	2,117	3,001	3,337	3,848	4,013
Special account deficits (*b*)	44	55	50	77	80
Total	2,161	3,056	3,387	3,925	4,093
Fund benefit	2,928	3,096	3,269	3,850	4,268

(*a*) From 1 July 1966 excludes services received by members of contract organisations. (*b*) Reimbursements paid to benefit organisations.

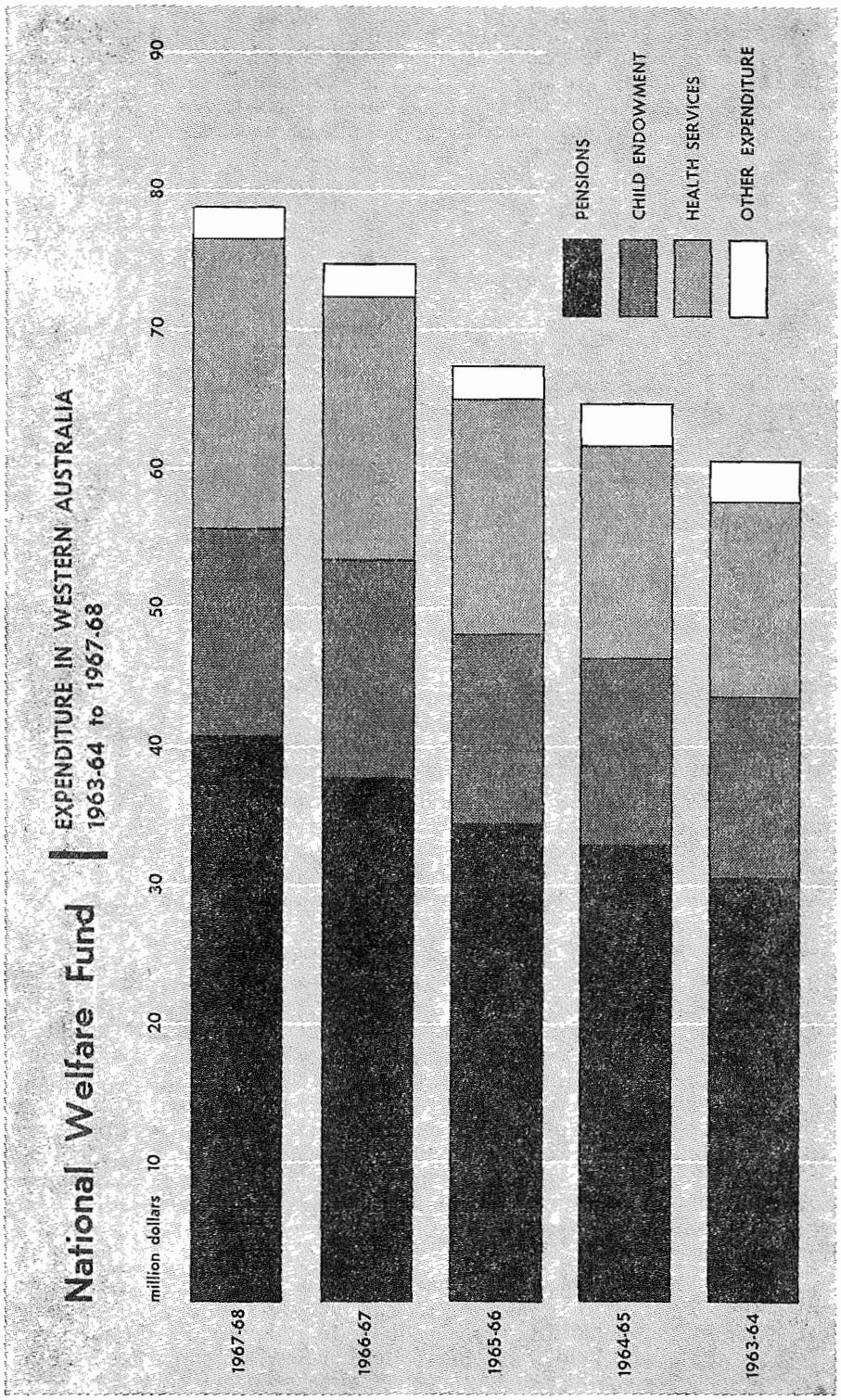
A Pensioner Medical Service, which commenced on 21 February 1951, was introduced under the authority of the National Health (Medical Services to Pensioners) Regulations made under the provisions of the *National Health Service Act* 1948-1949. The service has been continued under the provisions of the *National Health Act* 1953-1969.

Under the scheme, qualified persons and their dependants, including student children aged up to twenty-one years, are provided with a free general practitioner service. Specialist services are not provided. A small fee may be charged by practitioners who attend qualified patients outside normal surgery or visiting hours. Practitioners in the scheme are remunerated on a fee-for-service basis by the Commonwealth Government.

Pharmaceutical Benefits

The Pharmaceutical Benefits Scheme was inaugurated on 4 September 1950 when certain life-saving and disease-preventing drugs became available to the general community free of charge if duly prescribed by a medical practitioner registered in Australia. From 1 March 1960 a charge of fifty cents has been levied, except in the case of pensioners or their dependants, for each prescription dispensed and for each repeat supply. This amount represents the first fifty cents of the total cost, the remainder being met by the Commonwealth. With the introduction of this charge, the list of drugs available as pharmaceutical benefits was greatly expanded and now comprises a wide range of drugs, including the majority of those covered by the British Pharmacopoeia. Additions are recommended from time to time by the Pharmaceutical Benefits Advisory Committee, a committee of experts which advises the Government on the value of drugs most suitable for the treatment of various diseases.

A service providing pharmaceutical benefits free of charge to pensioners has been in operation since 2 July 1951. The full range of medicines supplied under the general scheme, and certain additional drugs, are available for this service. Persons qualifying for benefits are those who hold a Pensioner Medical Service entitlement card, and the dependants of such persons including student children aged up to twenty-one years.


National Welfare Fund
EXPENDITURE IN WESTERN AUSTRALIA
1963-64 to 1967-68
million dollars
10
20
30
40
50
60
70
80
90
1967-68
1966-67
1965-66
1964-65
1963-64
PENSIONS
CHILD ENDOWMENT
HEALTH SERVICES
OTHER EXPENDITURE

Free Milk for School Children

The *States Grants (Milk for School Children) Act* 1950 provides for the distribution of free milk to school children throughout the Commonwealth, with the object of improving their diet. All children under the age of thirteen years attending school are eligible to receive this issue. The cost of the milk plus half the capital or incidental costs, including expenses incurred in administering the scheme, is reimbursed by the Commonwealth to the State, which arranges for the distribution.

Tuberculosis Campaign

The *Tuberculosis Act* 1948 provides for a joint Commonwealth and State campaign against tuberculosis. The Commonwealth has an arrangement with the States, whereby each State is required to conduct a campaign against tuberculosis and to provide adequate facilities for that purpose. In consideration of this, the Commonwealth undertakes to reimburse the State for all approved capital expenditure in relation to tuberculosis and for net maintenance expenditure to the extent that it is in excess of net maintenance expenditure for the base year 1947-48. Thus, the States are required to carry out the actual physical or field work of the national campaign with the Commonwealth acting in an advisory, co-ordinating and financial capacity.

The Act provides also for the payment of allowances to sufferers and their dependants at such rates as the Director-General of Health, subject to the direction of the Minister, determines. Payments under the scheme commenced on 13 July 1950. The maximum rate of allowance to a married sufferer with dependent wife is $29.75 per week. Allowances for dependent children, including student children, are payable at the rate of $2.50 per week for the first child and $3.50 per week for each subsequent child. A sufferer without dependants is eligible to receive a maximum of $18.25 per week or, if receiving hospital treatment free of charge, $15 per week. There is a means test, which applies only to income and not to property. The allowance is reduced by the amount by which income from other sources exceeds $14 per week in the case of a married sufferer and $10 per week in the case of a person without a dependant wife.

Miscellaneous Health Services

Other Commonwealth expenditure on health services includes the cost of district health laboratory services, the free supply of certain prophylactic materials and biological products (*e.g.* poliomyelitis vaccine), the supply and maintenance of hearing aids for children, subsidies to various voluntary organisations conducting home-nursing services that are assisted by the State Governments or local government authorities, the supply of artificially produced radio-active isotopes to private medical practitioners and hospitals for medical treatment purposes, and expenses in connection with the blood fractionation plant of the Commonwealth Serum Laboratories.

Mental Health Institutions

The Commonwealth provides financial assistance to the States for or in connection with the building or equipment of mental health institutions. Payments are made from the Consolidated Revenue Fund. Grants provided for under the *States Grants (Mental Health Institutions) Act* 1964-67 are equal to one-third of a State's capital expenditure on mental health institutions.

STATE RELIEF PAYMENTS

Under the provisions of the *Welfare and Assistance Act, 1961*, the State Government, through the Child Welfare Department, extends financial assistance to indigent persons. These relief payments which in many cases supplement the social benefits provided by the Commonwealth Government are made primarily to ensure that dependent children do not suffer hardship from the indigence of parents or guardians. Those assisted include deserted wives, unmarried mothers, divorced women, widows having the care of children, and families where the husband is unable to provide adequate support because of sickness, unemployment, age or imprisonment.

Other aid provided by the State for persons in need includes rail passes for country people requiring medical treatment in the metropolitan area and the provision of school requisites for children of women receiving financial assistance. In certain circumstances, the burial of indigent persons is arranged at State expense.

Deserted wives and unmarried mothers applying to the Department for assistance are given advice concerning the legal redress available to them and it is usual for application to be made to a Summary Relief Court or a Children's Court for an order requiring the husband or the father to provide maintenance. Court orders are enforceable throughout Australia and in certain overseas countries.

State monetary assistance to widows, not in receipt of a Commonwealth widow's pension, is at the rate of $13.25 per week, plus $8.25 per week for the first dependent child, $3.50 per week for the second child, $4.50 per week for the third child, and $3.50 for each other dependent child in her care. Unmarried mothers receive State monetary assistance at the same rate. To a widow receiving a Commonwealth pension the State pays $2 per week if she has three or more dependent children. In this context, the term 'widow' includes deserted wives, divorced women, and women deprived of support by the insanity or imprisonment of husbands. If an age or invalid pensioner has dependent children, the State allows $2 per week where there is one child, or $2.50 per week where there is more than one dependent child.

Where Commonwealth unemployment or sickness benefits are payable, State financial assistance of $11.25 for parents, plus $1.50 for each dependent child up to a maximum of seven children, is paid for one week pending receipt of the Commonwealth benefit. In addition, Commonwealth child endowment is payable in respect of all dependent children. Details of Commonwealth Social Service benefits are given earlier in this Part in the section *Social Service Benefits*. The amount of State assistance granted is subject to a means test and in assessing income the earnings of the children of a family are taken into account.

FAMILIES RECEIVING FINANCIAL ASSISTANCE FROM CHILD WELFARE DEPARTMENT

Description	Number at 30 June—				
	1964	1965	1966	1967	1968
Widows	94	88	77	61	46
Unmarried mothers	64	39	46	48	55
Deserted wives	300	377	395	359	375
Husband pensioner	170	160	152	123	110
Husband sick or unemployed	320	173	187	130	102
Husband imprisoned	48	38	48	59	50
Divorced women	3	4	19	10	6
Foster-mothers	102	89	95	76	74
Special cases	3	3	3	6	2
Total	1,104	971	1,022	872	820

Under the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968, the Commonwealth shares on a $1 for $1 basis with participating States in the cost of helping certain mothers with dependent children who are ineligible for a Class 'A' widow's pension. The main groups of women assisted are deserted wives during the first six months of desertion; wives during the first six months of the husband's imprisonment; deserted *de facto* wives; and *de facto* wives of prisoners. The grant by the Commonwealth to a State is equal to half the cost of the approved assistance paid by the State to each eligible person but may not exceed half the amount that would have been payable to such a person under the Social Services Act had she been eligible for a Class 'A' widow's pension.

CHILD WELFARE

Under the provisions of the *Child Welfare Act, 1947-1969* the State Government, through the Child Welfare Department, is responsible for the care of State wards and children placed under supervision or released on probation by Children's Courts. For the purposes of the Act, a child is defined as ' any boy or girl under the age of eighteen years'. Institutions caring for children, as well as children brought to Western Australia under child migration schemes, are subject to supervision by the Department, as also are foster-mothers who have in their care children under six years of age and are required under the Act to be licensed for this purpose. Among other functions of the Department are the arranging of legal adoptions and the licensing of children employed in street trading and in public entertainment. A provision of the Child Welfare Act vests in the Department the right to decide which institution or what form of treatment is appropriate to the needs of a child committed by a Children's Court to the care of the Department for treatment, discipline and training.

Children's Courts are established at Perth and at other centres throughout the State and have jurisdiction in all cases where children under eighteen years of age are involved whether as offenders or as being neglected or destitute. The Courts also have jurisdiction to deal with adults committing certain specified offences against children. The public may be excluded from Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Adults charged with certain indictable offences against children may forgo the right to trial by jury and agree to be dealt with summarily by Children's Courts. This power to exercise summary jursidiction is designed to eliminate as far as possible the necessity for children to appear in open courts as witnesses in cases dealing with sex offences. A Children's Court may commit such offenders for sentence by the Supreme Court.

Children guilty of minor offences may be cautioned, fined, bound over, placed on probation, or dismissed without a conviction being recorded. A Court may declare a child to be neglected or destitute and may order the child to be committed to the care of the Child Welfare Department or released on probation. Children found guilty of offences punishable by imprisonment may be committed to the care of the Department, released on security given by parents, or released on probation under the supervision of the Department. Those guilty of less serious or first offences are generally placed in the care of their parents or suitable guardians under appropriate supervision by officers of the Child Welfare Department.

Expenditure. The following table gives details of the annual expenditure of the Child Welfare Department during the five-year period ended 30 June 1968.

EXPENDITURE OF CHILD WELFARE DEPARTMENT
($'000)

Nature of expenditure	1963–64	1964–65	1965–66	1966–67	1967–68
Administration	396	411	445	516	606
Departmental institutions	408	516	632	722	773
Maintenance of wards	332	358	385	440	488
Maintenance of migrant children	26	19	12	7	6
Outdoor relief (*a*)	321	337	351	393	350
Unemployment relief	91	69	42	40	37
Parole classes	3	4	3	3	4
Burial of indigents	9	7	9	8	8
Total expenditure	1,586	1,720	1,879	2,130	2,272
Total revenue	154	166	193	198	186
Net expenditure	1,432	1,554	1,686	1,932	2,086

(*a*) Assistance to women with dependent children and to the infirm.

Wards of the Child Welfare Department. A child committed to the care of the Child Welfare Department or to the custody of the Director of Child Welfare becomes a ward of the Department. A ward may be placed in an institution, boarded out with a relative

or other approved person, paroled or placed in suitable employment. The Director of Child Welfare has authority to place wards of working age in employment or apprenticeship. Where a ward is required to live at the place of employment, a service agreement covering wages and working conditions is made between the employer and the Department, which continues to watch the interests of the ward. The *Immigration (Guardianship of Children) Act* 1946-1952 (Commonwealth) provides that the Minister for Immigration shall be the guardian of migrant children under the age of twenty-one years who are not in the care of a parent or other relative. In Western Australia this function is exercised, under delegation, by the Director of Child Welfare.

Private Children. In addition to wards, there are some private children under the supervision of the Department. These comprise children under six years of age who may be either in institutions or in the care of licensed foster-mothers.

Maintenance of Children. Payments by the Child Welfare Department to foster-parents having the care of State wards are at the weekly rate of $5.60 for the first child, $5.20 for the second child and $5 for each additional child. Institutions are paid subsidies of $7.50 per week for each ward in their care. The British Government pays $2.50 per week for each British migrant child in institutions or boarded out and the State Government pays an additional amount of sixty cents per week. A further grant of $1 per week for each child maintained is paid to the institutions by the State Lotteries Commission. Where an institution refuses assistance from the Commission on religious or moral grounds the State Government may grant an equivalent allowance to the institution for each ward maintained. All institutions and foster-parents having the care of children receive Commonwealth child endowment payments. Under an 'emergency' foster placement scheme established by the Department during 1967, children are placed for short periods in approved private homes while awaiting permanent placement.

Parents or step-parents are required to contribute towards the maintenance of wards in institutions or boarded out.

Employment of Children. The *Child Welfare Act, 1947-1969* provides that children may not engage in street trading except under licence granted by the Department. The issue of licences is restricted to those aged twelve years and over and it is an offence to employ an unlicensed child. Most of the licences issued are for the sale of newspapers.

The Act provides further that children under the age of sixteen years may not take part in any form of public entertainment for profit or reward unless under licence, except in the case of an occasional entertainment for the benefit of a school or charitable or patriotic object. Most of these licences are issued for concerts arranged by dancing teachers and other tutors.

Adoption of Children. Any person who takes charge of a child with the object of adoption must notify the Director of Child Welfare. Legal adoptions may be arranged by the Department or privately by solicitors. In either case, the Director is required to investigate the suitability of applicants and an order for adoption must be obtained from a Judge of the Supreme Court.

Institutions. The State Government subsidises homes for children in Western Australia. Most of these institutions are conducted by religious organisations. All institutions having the care of wards (including migrant children) or private children under six years of age are subject to the supervision of the Department.

'Hillston' Anglican Farm School at Stoneville and 'Riverbank' at Caversham are reformatories for delinquent boys. 'Riverbank' is a maximum security institution for the treatment of the more difficult offenders and is controlled by the Child Welfare Department. The Home of the Good Shepherd at Leederville cares for delinquent and maladjusted girls.

The Child Welfare Department maintains a Reception Home at Mount Lawley which serves as a temporary shelter for deprived or neglected children awaiting placement, and as a haven for children whose parents are temporarily unable to care for them. 'Longmore' Remand and Assessment Centre at Bentley is a maximum security institution which provides personal supervision for boys and girls aged thirteen to eighteen years. Children accommodated are those who are on remand from a Children's Court or have been newly committed to the care of the Department. While at the Centre they undergo medical, mental or social investigation to determine appropriate subsequent action. The Centre is designed to accommodate sixty children.

The following table shows details of children in institutions under the supervision of the Child Welfare Department at 30 June 1968.

CHILDREN IN INSTITUTIONS AT 30 JUNE 1968 (*a*)
(*Excluding missions for Aborigines*)

Institution	State wards		Migrant children (*b*)		Private children		Total		
	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Children
CHILD WELFARE DEPARTMENT—									
Longmore, Bentley	36	21	....	....	....	....	36	21	57
Reception Home, Mount Lawley	25	12	....	....	2	2	27	14	41
Riverbank, Caversham	33	....	....	....	....	....	33	....	33
Total	94	33	....	....	2	2	96	35	131
ANGLICAN—									
Hillston Farm School, Stoneville	58	....	....	....	....	....	58	....	58
Parkerville Children's Home, Parkerville	28	14	....	....	38	39	66	53	119
W.A. Saw Seaside Home, Coogee	5	2	....	....	....	....	5	2	7
Total	91	16	....	....	38	39	129	55	184
METHODIST—									
Allandale Boys' Cottage, East Victoria Park	8	....	....	....	8	....	16	....	16
Mofflyn, East Victoria Park	9	10	....	....	20	18	29	28	57
Werribee Girls' Cottage, East Victoria Park	....	....	....	....	....	7	....	7	7
Total	17	10	....	....	28	25	45	35	80
PRESBYTERIAN—									
Sister Kate's Children's Home, Queens Park	43	30	....	....	5	4	48	34	82
ROMAN CATHOLIC—									
Castledare Boys' Home, Wilson	27	....	....	....	67	....	94	....	94
Clontarf Boys' Town, Wilson	25	....	14	....	84	....	123	....	123
Home of the Good Shepherd, Leederville	....	31	....	....	....	36	....	67	67
Nazareth House, Geraldton	6	6	....	8	4	17	10	31	41
Saint Joseph's Orphanage, Wembley	....	14	....	....	....	48	....	62	62
Saint Mary's Agricultural School, Tardun	13	19	....	....	53	....	66	19	85
Saint Vincent's Foundling Home, Wembley	12	4	....	....	42	43	54	47	101
Total	83	74	14	8	250	144	347	226	573
SALVATION ARMY—									
Boys' Home, Nedlands	33	....	....	....	14	....	47	....	47
Girls' Home, Mosman Park	....	1	....	....	....	18	....	19	19
Total	33	1	....	....	14	18	47	19	66
UNDENOMINATIONAL—									
Kingsley Fairbridge Farm School, Pinjarra	2	....	89	78	....	....	91	78	169
Ngal-a, Kensington	26	15	....	....	12	4	38	19	57
Wanslea, Cottesloe	2	2	....	....	5	5	7	7	14
Total	30	17	89	78	17	9	136	104	240
GRAND TOTAL	391	181	103	86	354	241	848	508	1,356

(*a*) Excludes 55 State wards in hospitals and 21 State wards in prison. (*b*) See letterpress *Wards of the Child Welfare Department* on pages 243–4.

Chapter V—continued

Part 6—Law, Order and Public Safety

The law in force in Western Australia is contained in The Statutes of Western Australia, comprising legislation passed by the Western Australian Parliament and certain Imperial Acts which have been adopted, and in the Commonwealth Acts in so far as they apply to Western Australia. Under the Constitution of the Commonwealth of Australia, ' when a law of a State is inconsistent with a law of the Commonwealth, the latter shall prevail, and the former shall, to the extent of the inconsistency, be invalid '.

Australian law adheres to the principle that judicial control must in general be exercised by ordinary courts. There is no integrated system of administrative tribunals. The ordinary courts exercise supervision over administrative tribunals either by way of statutory appeal or by the use of prerogative writs of mandamus, prohibition or *certiorari*, by which administrative tribunals can be enjoined to perform a duty or to abstain from excess of jurisdiction, or can have their decisions set aside. A basic feature of the Australian legal system is the ' rule of law ': no act, official or unofficial, however *bona fide* and apparently reasonable, which infringes the liberty or rights of an individual is justifiable unless it is authorised by law, and for any such unlawful act, by whatever authority commanded, the official or other person is personally liable in an action in the ordinary courts.

The Legal Profession

The Barristers' Board, constituted under the *Legal Practitioners Act, 1893-1969*, comprises the Attorney-General as chairman; the Solicitor-General; all Queens' Counsel residing and practising in the State; persons who retire from an office of Judge of the Supreme Court and are resident in the State; and five practitioners of at least three years' standing and practice in the State, elected annually by the practitioners on the roll of the Supreme Court residing and practising in the State.

The Board has the power to regulate and control the examination and admission of articled clerks, and the examination of all candidates for admission as practitioners. The certificate of the Board is necessary before any person may be admitted to practice. An applicant for admission having qualifications acquired outside Western Australia must satisfy the Board that he possesses qualifications substantially equivalent to those required for the admission of persons who qualify in Western Australia.

The Crown Law Department

The Crown Law Department is administered, subject to the control of the Minister, by the Under Secretary for Law. The Department is responsible for the Supreme Court Central Office, Court Offices throughout the State, the Solicitor-General's Office, the Office of Titles, the Probate Office, the Public Trust Office, the Companies Registration Office, and the Probation and Parole Service. The Department, in addition to administering the Acts which come under the portfolio of the Minister, conducts Crown legal business and, when required, acts for and advises all other State Government Departments and instrumentalities.

LAW COURTS

The principal courts operating in Western Australia are the High Court of Australia, the Supreme Court of Western Australia, the Third Party Claims Tribunal, Courts of Session, the Magistrates' and Coroners' Courts, the Summary Relief Court and the State Licensing

Court. In Chapter X, Part 1, reference is made to the Commonwealth Industrial Court, the Commonwealth Conciliation and Arbitration Commission, the Western Australian Industrial Appeal Court, and The Western Australian Industrial Commission.

Further information relating to Commonwealth and State Courts appears in Chapter III where reference is made on pages 117-18 to the High Court of Australia, the Commonwealth Industrial Court, the Federal Court of Bankruptcy, the Supreme Court of Western Australia and the Western Australian Industrial Appeal Court.

High Court of Australia

The High Court of Australia is the Federal Supreme Court and its powers are defined in the Commonwealth Constitution and in the *Judiciary Act* 1903–1969. The High Court consists of a Chief Justice and six other Justices. Sittings are held in the capital city of each State as occasion may require. The High Court exercises both original and appellate jurisdiction, acting as a court of appeal for Australia.

An appeal may lie from a judgment of the High Court of Australia to the Judicial Committee of the Privy Council in London. However, the *Privy Council (Limitation of Appeals) Act* 1968 (Commonwealth), which came into operation on 1 September 1968, limits the matters which may be the subject of special leave of appeal from a decision of the High Court. The Act provides, in part, that leave of appeal ' may be asked only in a matter in which the decision of the High Court was a decision that (*a*) was given on appeal from a decision of the Supreme Court of a State given otherwise than in the exercise of federal jurisdiction; and (*b*) did not involve the application or interpretation ' of the Australian Constitution, or of a Commonwealth law (including any ordinance, rule, regulation or by-law made under such a law).

Supreme Court of Western Australia

The Supreme Court of Western Australia, as constituted under the *Supreme Court Act, 1935–1964*, consists of a Chief Justice and such other Judges, not exceeding six in number, as may from time to time be appointed. The jurisdiction of the Court in both civil and criminal matters is exercised by a single Judge, sitting alone or with a jury, unless it is provided that an action must be brought before a Full Court. Criminal cases are heard before a jury. Criminal sittings of the Supreme Court are held at Perth each month from February to December. Civil sittings and Full Court sittings are held at times fixed by the Court from year to year.

The Circuit Court sits at Albany, Bunbury, Geraldton and Kalgoorlie four times a year, and a Judge of the Supreme Court usually presides.

Any two or more Judges together comprise a Full Court except that when sitting as a court of criminal appeal there must be an uneven number of Judges. The Full Court sits at least five times in every year with additional sittings when necessary. Appeals are heard against judgments of the Supreme Court and of the Circuit Courts and Courts of Session as well as against decisions of the magistrates in lower courts.

Appeal from a judgment of the Supreme Court of Western Australia lies to the High Court of Australia, subject to the provisions of the *Judiciary Act* 1903–1969 (Commonwealth), and may also be made direct to the Privy Council.

Third Party Claims Tribunal

The Third Party Claims Tribunal is established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966*. The Tribunal consists of three members, including a Chairman, appointed by the Governor. The Chairman must be either a Judge or a legal practitioner of not less than eight years' standing and practice. The Tribunal has exclusive jurisdiction to hear and determine all actions and proceedings brought against an owner or driver of a motor vehicle, or against The Motor

Vehicle Insurance Trust, claiming damages in respect of the death of, or bodily injury to, any person caused by or arising out of the use of a motor vehicle. The Tribunal may, in respect of any claim, delegate powers to the magistrate of a Local Court. Any party dissatisfied with any decision, determination or judgment of the Tribunal in any action or proceedings under the Act may appeal to the Full Court of the Supreme Court.

Courts of Session

Courts of Session established under the provisions of the *Courts of Session Act, 1921* are held four times a year, or as required, at the principal court house of each of the fourteen session divisions. Either a Judge of the Supreme Court or the Chairman of the Court of Session may preside. The Chairman of a Court of Session is the Stipendiary Magistrate stationed at the centre at which a Court is held. Only criminal cases are dealt with and a jury is therefore required at all sittings. A case may be reserved for hearing before a Judge of the Supreme Court.

The *District Court of Western Australia Act, 1969* provides for the repeal of the Courts of Session Act and the establishment of The District Court of Western Australia on a date to be fixed by proclamation. At 31 December 1969 the Act had not come into operation.

Magistrates' and Coroners' Courts

In addition to their usual functions, magistrates act as coroners and mining wardens where required. Two or more Justices of the Peace sitting together in petty sessions may deal with cases which could be decided by a magistrate sitting alone.

POLICE COURTS. Police Courts are held at centres of population throughout the State. Minor offences are dealt with summarily, but a person charged with an indictable offence may be committed to a higher court for trial or sentence if there is sufficient evidence to justify this course.

CHILDREN'S COURTS. Children's Courts are established under the provisions of the *Child Welfare Act, 1947–1969* to deal with offenders under the age of eighteen years and to hear certain specified cases of offences against children. Certain cases of offences concerning children may be remanded for hearing or committed for sentence before the Supreme Court. The public may be excluded from Children's Court hearings and names of juvenile offenders are withheld from publication unless with the express authority of the Court. Children's Courts operate in Perth, and at other centres as required. Further reference to Children's Courts appears in the section *Child Welfare* in Part 5 of this Chapter.

CORONERS' COURTS. Coroners' Courts may be held to inquire into the circumstances of sudden or unnatural deaths or the cause and origin of fires. A Coroner may charge a person with a major offence and commit him for trial at a higher court.

SUMMARY RELIEF COURT. The Summary Relief Court is established under the provisions of the *Married Persons and Children (Summary Relief) Act, 1965–1967* and is empowered to make orders providing for separation, payment of maintenance, legal custody of a child and access to a child.

LOCAL COURTS. Local Courts are held throughout the State to determine minor civil issues, largely the recovery of small debts. Jurisdiction is limited in most cases to claims not exceeding $1,000.

State Licensing Court

The State Licensing Court consists of three members appointed by the Governor to administer the Licensing Act and to issue licences for the sale of alcoholic liquor.

COURT PROCEEDINGS

Higher Courts

The term *Higher Courts*, as used in the following table and in the tables on pages 250 and 253, refers to courts presided over by a Judge. The general jurisdiction of the higher courts includes appeals from the lower courts, cases of crime committed from lower courts, and civil cases. Under the *Bankruptcy Act* 1966–1969 (Commonwealth) the Supreme Court of Western Australia is invested with jurisdiction in bankruptcy, and under the *Matrimonial Causes Act* 1959–1966 (Commonwealth) with jurisdiction in divorce and related matters. Decrees of dissolution of marriage, nullity of marriage,and judicial separation may be granted by the Supreme Court or the Circuit Court.

Civil Proceedings

Particulars of civil cases dealt with by the courts in the five years ended 31 December 1968 are shown in the following table.

CIVIL PROCEEDINGS

Particulars	1964	1965	1966	1967	1968
Number of proceedings—					
Bankruptcy (*a*)—					
Sequestration orders	186	236	197	195	222
Compositions and assignments without sequestration	55	72	80	82	52
Divorce (*b*)—					
Petitions filed	656	738	791	890	1,003
Decrees granted (*c*)	545	606	640	727	812
Other civil proceedings—					
Higher courts—					
Writs issued	1,255	1,463	1,776	2,063	1,773
Judgments signed and entered	408	490	652	633	780
Local courts—					
Plaints entered	60,023	56,141	54,289	55,559	57,689
Verdicts for plaintiffs	26,834	27,910	23,885	25,769	24,430
Amounts awarded—	$'000	$'000	$'000	$'000	$'000
Higher courts—					
Judgments signed and entered	1,237	2,228	2,274	5,770	3,845
Local courts—					
Verdicts for plaintiffs	2,534	2,627	2,446	2,822	2,812

(*a*) Figures relate to year ended 30 June; for further details see pages 299–300. (*b*) For further details see pages 161–2. (*c*) Comprises decrees for dissolution of marriage, nullity of marriage, and judicial separation.

Third Party Claims Tribunal

The Third Party Claims Tribunal established under the provisions of the *Motor Vehicle (Third Party Insurance) Act Amendment Act, 1966* acquired jurisdiction in December 1967. In the period to 31 December 1968, 409 claims were filed with the Tribunal, awards were made for damages amounting to $405,000, and settlements involving damages of a total value of $123,000 were approved.

CONVICTIONS IN COURTS

Aborigines

The figures shown in the tables on pages 250-1 and 253 include particulars of Aborigines. An analysis of convictions of Aborigines during each year of the period from 1964 to 1968, according to class of offence, is given on page 252.

Number of Convictions

It is important to bear in mind when considering the particulars shown in the tables on pages 250–3 that the figures relate to the *number of convictions* recorded and not to the *number of persons* convicted. Thus, where a person is convicted on more than one count at the same hearing, each conviction so recorded has been included in the statistics appearing in the tables.

Higher Courts

HIGHER COURTS—NUMBER OF CONVICTIONS (*a*)

Class of offence	1964	1965	1966	1967	1968
Offences against the person—					
Murder	3	3	1	2	1
Attempted murder	....	1	3	3	1
Manslaughter	6	8	7	4	5
Negligent driving causing death	12	8	11	4	4
Sex offences	19	38	36	32	24
Assault	5	17	13	25	62
Other	6	8	7	7	5
Total	51	83	78	77	102
Offences against property—					
Breaking, entering, and stealing	219	258	271	329	622
Stealing, receiving	101	55	46	95	113
Other	14	16	19	14	29
Total	334	329	336	438	764
Forgery and offences against the currency	3	53	63	31	41
Offences against good order	13	4	3	8	1
Other offences	16	4	8	9	44
GRAND TOTAL	417	473	488	563	952

(*a*) Including convictions of Aborigines.

Magistrates' Courts

MAGISTRATES' COURTS (*a*)—NUMBER OF CONVICTIONS (*b*)

Class of offence	1964	1965	1966	1967	1968
Offences against the person—					
Sex offences	169	110	148	172	183
Assault	574	674	717	801	871
Other	2	2	3	1	3
Total	745	786	868	974	1,057
Offences against property—					
Breaking, entering, and stealing	831	789	1,406	1,546	1,755
Stealing, receiving	4,796	4,787	4,879	5,461	6,159
Unlawfully on premises	249	370	444	503	723
Unlawfully using motor vehicles	954	717	1,173	1,107	1,524
Wilful damage	397	491	527	562	743
Other	35	39	53	46	34
Total	7,262	7,193	8,482	9,225	10,938
Forgery and offences against the currency	10	11	7	8	70
Offences against good order—					
Drunkenness	7,910	8,395	9,033	10,722	11,146
Disorderliness	2,029	2,267	2,359	2,899	2,763
Vagrancy	396	502	569	625	638
Escaping legal custody	} 677	{ 121	124	141	182
Offences against police		{ 672	729	826	1,018
Other	86	104	83	87	143
Total	11,098	12,061	12,897	15,300	15,890
Other offences—					
Breach of—					
Traffic Act	30,772	35,428	33,905	36,468	43,929
Liquor laws	1,293	1,582	1,735	2,811	2,393
Health laws	330	251	195	214	184
Gaming	212	251	81	118	156
Industrial offences	131	147	86	151	119
Maintenance offences	630	696	634	842	677
Taxation offences	219	684	522	642	504
Other offences	6,285	6,452	5,344	6,045	5,975
Total	39,872	45,491	42,502	47,291	53,937
GRAND TOTAL	58,987	65,542	64,756	72,798	81,892

(*a*) Including Children's Courts. (*b*) Including convictions of Aborigines.

Convictions of Juveniles

The term *juvenile*, as used in relation to the statistics given in this Part, means a person under the age of eighteen years. Convictions of juvenile offenders are included in the figures shown in the tables on pages 250 and 252, and are given separately in the tables below and on page 253.

The following table shows the number of convictions of juvenile offenders in higher (Judges') courts and magistrates' courts (including Children's Courts) in Western Australia during the five years ended 31 December 1968.

OFFENCES BY JUVENILES—NUMBER OF CONVICTIONS (*a*) (*b*)

Class of offence	1964	1965	1966 (*b*)	1967 (*b*)	1968 (*b*)
Offences against the person—					
Sex offences	66	50	56	76	76
Assault	73	56	80	107	134
Other	1	....	1	1	2
Total	140	106	137	184	212
Offences against property—					
Breaking, entering, and stealing	780	687	1,402	1,544	1,720
Unlawfully on premises	77	84	126	163	199
Stealing, receiving	1,826	1,823	2,038	2,318	2,428
Unlawfully using motor vehicles	516	396	840	761	970
Wilful damage	160	190	250	268	350
Other	20	26	34	38	15
Total	3,379	3,206	4,690	5,092	5,682
Forgery and offences against the currency	7	10	3	4	8
Offences against good order—					
Drunkenness	83	91	166	161	193
Disorderliness	230	176	256	300	265
Vagrancy	37	27	46	33	36
Escaping legal custody	....	10	19	10	19
Offences against police	89	79	112	143	176
Other	15	16	32	34	37
Total	454	399	631	681	726
Other offences—					
Breach of—					
Traffic Act	2,231	2,416	2,394	2,442	2,644
Liquor laws	204	222	243	488	481
Other offences	243	187	198	188	193
Total	2,678	2,825	2,835	3,118	3,318
GRAND TOTAL	6,658	6,546	8,296	9,079	9,946

(*a*) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (*b*) There is a break in continuity in this series; figures for years prior to 1966 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

The following table gives a classification, according to age of offender, of convictions of juveniles in courts in Western Australia during the year ended 31 December 1968.

CONVICTIONS OF JUVENILES, 1968 (*a*) (*b*)
AGES OF OFFENDERS

Class of offence	Age last birthday (years)												
	7	8	9	10	11	12	13	14	15	16	17	Not stated	Total
Against the person	....	....	....	....	1	2	2	19	34	58	92	4	212
Against property	9	17	60	142	244	461	610	813	1,077	1,100	1,065	84	5,682
Forgery, etc.	....	....	....	....	....	....	....	....	7	1	....	....	8
Against good order	1	1	1	2	2	2	16	40	68	214	373	6	726
Other offences (*c*)	....	....	....	....	....	....	....	....	....	....	....	3,318	3,318
Total	10	18	61	144	247	465	628	872	1,186	1,373	1,530	3,412	9,946

(*a*) Comprises convictions in higher courts and magistrates' courts (including Children's Courts). (*b*) Including convictions of Aborigines. (*c*) The figures shown comprise mainly convictions for traffic offences and breaches of liquor laws.

Convictions of Aborigines

Convictions recorded against Aboriginal offenders are included in the figures contained in the tables on page 250 and, except for the years 1964 and 1965, in those on page 251. The total number of convictions of Aborigines in each year from 1964 to 1968 are shown in the following table. The figures relate to convictions in higher courts and magistrates' courts (including Children's Courts).

OFFENCES BY ABORIGINES—NUMBER OF CONVICTIONS (*a*)

Class of offence	1964	1965	1966	1967	1968
Offences against the person—					
Murder	....	1	....	....	....
Manslaughter	2	1	3	....	....
Sex offences	11	16	22	18	33
Assault	172	241	274	299	352
Other	....	4	1	....	....
Total	185	263	300	317	385
Offences against property—					
Breaking, entering, and stealing	60	107	230	280	401
Stealing, receiving	341	442	356	627	675
Unlawfully on premises	47	64	77	104	208
Unlawfully using motor vehicles	134	113	114	213	369
Wilful damage	81	97	84	99	194
Other	3	2	23	3	10
Total	666	825	884	1,326	1,857
Forgery and offences against the currency	....	....	....	3	1
Offences against good order—					
Drunkenness	3,381	3,742	3,922	5,376	5,489
Disorderliness	747	938	1,005	1,561	1,417
Vagrancy	126	165	185	223	272
Escaping legal custody	183	39	35	65	72
Offences against police		164	183	240	239
Other	2	16	6	11	9
Total	4,439	5,064	5,336	7,476	7,498
Other offences—					
Breach of—					
Native Welfare Act	383	420	350	196	551
Traffic Act	617	537	521	712	738
Liquor laws	108	91	132	232	272
Health laws	3	....	2	....	....
Gaming	19	16	8	....	4
Maintenance offences	24	27	13	9	6
Other offences	112	115	117	147	101
Total	1,266	1,206	1,143	1,296	1,672
GRAND TOTAL	6,556	7,358	7,663	10,418	11,413

(*a*) Comprises convictions in higher courts and magistrates' courts (including Children's Courts).

It will be seen from the table that more than half the convictions were connected with the consumption of alcoholic liquor. From 1 July 1964, when the *Licensing Act Amendment Act (No. 4), 1963* came into operation, the former restrictions on the consumption of alcoholic liquor by Aborigines have been limited to areas of the State declared for the purpose. The restricted area which, from 1 July 1964, was the portion of Western Australia outside the South-West Land Division (see page 136), was reduced with effect from 1 November 1966 so as to comprise approximately that area of the State lying east of longitude 121°E.

Summary of Convictions in Courts

The following table gives a summary of convictions in courts in Western Australia during each of the five years to 31 December 1968, together with an analysis according to class of offence of convictions recorded during the year ended 31 December 1968.

COURT CONVICTIONS—SUMMARY

Particulars	Higher courts (a)			Magistrates' courts (a)			Convictions of juveniles (b) (c)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
FIVE YEARS ENDED 31 DECEMBER 1968									
Year—									
1964	405	12	417	53,363	5,624	58,987	6,245	413	6,658
1965	437	36	473	58,723	6,819	65,542	6,110	436	6,546
1966	427	61	488	57,695	7,061	64,756	7,666	630	8,296
1967	547	16	563	64,256	8,542	72,798	8,331	748	9,079
1968	901	51	952	72,839	9,053	81,892	9,129	817	9,946
YEAR ENDED 31 DECEMBER 1968									
Class of offence—									
Against the person	99	3	102	1,005	52	1,057	199	13	212
Against property	726	38	764	9,926	1,012	10,938	5,156	526	5,682
Forgery, etc.	36	5	41	24	46	70	6	2	8
Against good order	1	....	1	13,258	2,632	15,890	604	122	726
Other offences	39	5	44	48,626	5,311	53,937	3,164	154	3,318
Total	901	51	952	72,839	9,053	81,892	9,129	817	9,946

(a) Including convictions of Aborigines. (b) Included in figures shown under *Higher Courts* and *Magistrates' courts*. (c) There is a break in continuity in this series; figures for years prior to 1966 exclude convictions of Aborigines, while those for 1966 and later include Aborigines.

Regulations under the Traffic Act allow fines to be imposed without court action for minor traffic offences. Similar provisions apply under parking facilities legislation and municipal by-laws. These minor offences (which are, of course, excluded from the tables relating to court convictions) numbered 47,953 in 1964; 49,590 in 1965; 63,560 in 1966; 64,055 in 1967; and 83,146 in 1968.

LIQUOR LICENCES

The following table shows the number of liquor licences of the several types in force in Western Australia at 31 December of each year from 1964 to 1968. The figures in the table relate to licences granted under the provisions of the *Licensing Act, 1911-1969*.

LIQUOR LICENCES IN FORCE

Class of licence	At 31 December—				
	1964	1965	1966	1967	1968
Publican's general	407	411	413	418	419
Limited hotel	3	3	3	3	5
Wayside house	43	42	42	41	40
Australian wine, beer and spirits	1	1	1	1	1
Australian wine	48	48	47	47	46
Australian wine, bottle	5	5	5	6	8
Packet	9	9	9	9	9
Railway refreshment room	1	1	1	....	....
Spirit merchant's	44	44	44	44	47
Brewer's	4	4	4	4	4
Gallon	214	211	212	212	212
Eating-house, boarding-house, lodging-house	....	....	....	....	....
Club	230	236	237	240	251
Canteen	5	15	14	8	17
Restaurant	24	24	22	23	25
Total	1,038	1,054	1,054	1,056	1,084

By a provision of the *Government Railways Act, 1904–1967*, The Western Australian Government Railways Commission is authorised to lease railways premises for the sale of refreshments, subject to the provisions of the Licensing Act. Where the licensee is not an officer employed by the Commission, the lease requires the sanction of the Licensing Court and is subject to such conditions as the Court may impose.

A licence applying to premises at Perth International Airport is issued in terms of the *Airports (Business Concessions) Act* 1959 (Commonwealth).

POLICE

The Western Australian Police Force comprises five main branches under the direction of the Commissioner of Police. The Commissioner is responsible to the Minister for Police and is assisted by a Deputy Commissioner.

For the administration of the Uniformed Branch, the State is divided into three metropolitan districts and seven country districts, each under the direction of an Inspector-in-Charge. There are three specialised branches, the Criminal Investigation Branch, the Plain Clothes Branch and the Traffic Branch, each of which is headed by an Inspector-in-Charge. The Women Police form the fifth branch.

The following table shows the numbers and classification of members of the Western Australian Police Force at 30 June in each of the years 1967 and 1968. Two new police classifications were introduced in Western Australia on 1 January 1970. After completion of qualifying examinations, members of the Police Force with five years' service are promoted to the rank of first-class constable and those with ten years' service to the rank of senior constable.

POLICE FORCE—NUMBER AND CLASSIFICATION (*a*)
AT 30 JUNE 1967 AND 30 JUNE 1968

Classification	Branch and number of officers											
	Uniformed Branch		Criminal Investigation Branch		Plain Clothes Branch		Women Police		Traffic Branch		Total (*a*)	
	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968	1967	1968
Inspector	27	29	4	4	1	....	....	1	5	6	37	40
Sergeant	158	169	....	....	5	7	3	2	31	30	197	208
Detective Sergeant	....	....	40	46	....	....	....	....	....	....	40	46
Detective constable	....	....	61	64	....	....	....	....	....	....	61	64
Constable	782	799	....	....	50	48	17	18	188	195	1,037	1,060
Total	967	997	105	114	56	55	20	21	224	231	1,372	1,418

(*a*) In addition to the numbers shown there were a Commissioner of Police, a Deputy Commissioner of Police and a Chief Inspector of Police.

The Uniformed Branch comprises the main body of the Police Force and is responsible for the routine maintenance of law and order throughout the State. Where required, officers of the Branch act as Clerks of Courts and perform special duties for other government authorities.

The Criminal Investigation Branch is centred in Perth, with several sub-branches in the metropolitan area and at Albany, Bunbury, Geraldton, Kalgoorlie, Kellerberrin, Narrogin and Northam. The Branch is equipped with radio patrol cars and the usual facilities for work on fingerprints, photography and ballistics. Special staffs attached to the Criminal Investigation Branch are responsible for security and for police work in connection with gold stealing, pillaging and thefts from retail shops.

The Plain Clothes Branch is concerned mainly with the enforcement of the liquor laws and laws for the suppression of vice and gaming. Licensing of firearms is also a responsibility of the Branch.

The Women Police are employed mainly in police duties concerning women and children. Policewomen are stationed at Perth, Fremantle, Geraldton and Kalgoorlie.

The Traffic Branch has its principal office in Perth and has ten sub-branches. It is responsible for the regulation of traffic and the licensing of motor vehicles in the Metropolitan Traffic Area and, from 1 January 1969, the Kimberley Traffic Area (comprising the Shires of Broome and West Kimberley). In other parts of the State these functions are performed by the local government authorities. Licences to drive motor vehicles are issued by police officers throughout the State. The Traffic Branch is responsible for the patrol of major highways to check commercial vehicles for overloading and for excessive speed. Officers of the Branch instruct school children in the principles of road safety and assist the National Safety Council to conduct a school where young persons are instructed in the proper use of motor cycles. Traffic Education Classes, although held mainly for the instruction of minor offenders against traffic laws, also admit members of the public who attend voluntarily.

Police and Citizens' Youth Clubs are established by the Police Department to provide recreational facilities for young people and to give them an appreciation of civic responsibilities. In 1968, there were nine clubs in the metropolitan area and nineteen in country districts, with a total membership exceeding 7,000.

PRISONS

In Western Australia there are eight prison establishments under the control of the Prisons Department, and eight police gaols administered jointly by the Prisons Department and the Police Department. The principal institution is at Fremantle and there are regional gaols at Albany, Broome, Geraldton and Kalgoorlie. Fremantle Prison has outstations at Barton's Mill, Pardelup Prison Farm, and Karnet Rehabilitation Centre at Keysbrook.

The following table shows the number of receivals for penal imprisonment in gaols in Western Australia during each of the five years to 30 June 1968. It is important to note that the figures relate to *receivals* and not to *distinct persons*, *i.e.* a prisoner has been counted once for each time he or she was received.

PENAL IMPRISONMENT—NUMBER OF RECEIVALS (*a*)

Institution	Year ended 30 June—									
	1964		1965		1966		1967		1968	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Prisons—										
Fremantle (*b*)	2,659	294	2,506	282	2,474	297	2,795	309	2,790	373
Albany (*c*)	....	....	....	....	....	....	186	41	297	70
Broome	111	8	145	9	113	14	161	19	100	15
Geraldton (*d*)	....	....	185	31	189	41	286	52	483	119
Kalgoorlie (*e*)	....	....	....	....	....	....	....	....	295	45
Total	2,770	302	2,836	322	2,776	352	3,428	421	3,965	622
Police gaols	1,476	233	1,231	165	1,107	155	1,291	217	1,126	276
GRAND TOTAL	4,246	535	4,067	487	3,883	507	4,719	638	5,091	898

(*a*) Excludes imprisonment for debt. (*b*) Includes Barton's Mill, Karnet Rehabilitation Centre and Pardelup Prison Farm. (*c*) Opened 16 September 1966. (*d*) Administration transferred from Police Department to Prisons Department during the year ended 30 June 1965. (*e*) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison.

Fremantle gaol is divided into separate sections for females, prisoners on remand or awaiting trial, juvenile prisoners, and other sentenced prisoners. There are workshops where prisoners are employed in bootmaking, carpentry, printing, tailoring, tinsmithing and welding, and in making cement and plaster products. Prisoners can also qualify as cooks and bakers. A school is conducted by teachers supplied by the Education Department, and tuition by correspondence is also available.

Barton's Mill, Pardelup Prison Farm and Karnet Rehabilitation Centre are minimum security institutions housing male prisoners. At Barton's Mill the main activity is the cutting of firewood for government establishments. This production is declining as timber resources in the area are becoming depleted, and trade training workshops are being developed. Farming is carried on at Pardelup Prison Farm and Karnet Rehabilitation Centre, and inmates receive instruction in animal husbandry, market gardening, and the operation and maintenance of farm machinery. Karnet Rehabilitation Centre is a dual-purpose institution with accommodation in two dormitory blocks, one of which houses convicted inebriates. The other block provides for selected inmates, mainly young first offenders, for whom accommodation is being increased by the erection of single cabins adjacent to the dormitory block.

Police gaols are established in Perth and at other centres. They are used for the detention of short-sentence prisoners and prisoners awaiting trial. In addition, provision is made for holding prisoners for short periods at police stations throughout the State.

The following table shows the number of prisoners, excluding trial and remand prisoners and debtors, in gaols in Western Australia at 30 June in each year from 1964 to 1968.

PRISONERS IN GAOL

Institution	At 30 June—									
	1964		1965		1966		1967		1968	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Prisons—										
Fremantle	457	23	405	33	459	27	521	46	461	37
Albany (*a*)	....	....	....	....	....	....	48	5	92	....
Barton's Mill	86	....	77	....	90	....	119	....	93	....
Broome	28	1	40	1	35	1	51	7	36	4
Geraldton (*b*)	....	....	17	2	21	....	43	3	105	....
Kalgoorlie (*c*)	....	....	....	....	....	....	....	....	48	2
Karnet Rehabilitation Centre —										
Inebriates' Section	35	....	38	....	37	....	57	....	53	....
Other	58	....	46	....	53	....	60	....	70	....
Pardelup Prison Farm	49	....	50	....	51	....	62	....	79	....
Total	713	24	673	36	746	28	961	61	1,037	43
Police gaols	81	7	85	9	84	5	105	10	67	3
GRAND TOTAL	794	31	758	45	830	33	1,066	71	1,104	46

(*a*) Opened 16 September 1966. (*b*) Administration transferred from Police Department to Prisons Department during year ended 30 June 1965. (*c*) On 29 February 1968 the former police gaol was closed and simultaneously gazetted as a prison.

PROBATION AND PAROLE SERVICE

The Probation and Parole Service, a branch of the Crown Law Department, is constituted under the provisions of the *Offenders Probation and Parole Act, 1963–1969.*

Part II of the Act, dealing with the probation of offenders, came into operation on 1 January 1965. Probation officers appointed under the Act carry out supervision of offenders placed on probation by the courts. A court may require the Chief Probation Officer to report on an offender before sentence is imposed.

Part III, which relates to the parole of offenders, came into operation on 1 October 1964. It establishes a Parole Board of five members, comprising a Judge of the Supreme Court as chairman, the Comptroller-General of Prisons, and three members appointed by the Governor.

The Act requires that where a person is sentenced to imprisonment for twelve months or longer the court shall, unless special circumstances make it inappropriate, fix a minimum term during which the convicted person is not eligible to be released. The court is given discretionary power to fix a minimum term where the sentence is for less than

twelve months. Provision is made for the reduction of a minimum term, as a reward for good conduct or industry. Where no minimum term has been fixed, remission of up to 25 per cent of the sentence may be allowed for diligence and good conduct.

The Parole Board is empowered to release on parole a prisoner who has served a minimum term fixed by a court, or a prisoner being detained at the Governor's pleasure. The Governor may direct the release on parole of a prisoner sentenced to imprisonment for life, a prisoner undergoing a sentence of imprisonment for life commuted from a sentence of death, or an unconvicted person held in custody during the Governor's pleasure following acquittal because of unsoundness of mind.

Parole officers establish contact with prisoners before release on parole and supervise them during the parole period.

The following table gives particulars of the operations of the Probation and Parole Service from inception to 30 June 1968.

PROBATION AND PAROLE

Particulars	Probation				Parole (*a*)			
	1965 (*b*)	1966 (*c*)	1967 (*c*)	1968 (*c*)	1965 (*d*)	1966 (*c*)	1967 (*c*)	1968 (*c*)
Number of persons—								
Under supervision at beginning of period	....	120	415	654	69	141	208	208
Admitted to probation or released on parole during period	120	347	403	370	109	226	232	280
Under supervision during period	120	467	818	1,024	178	367	440	488
Cancellation of probation or parole	....	14	56	66	23	56	81	72
Completion of probation or parole	....	38	108	204	14	103	151	126
Under supervision at end of period	120	415	654	754	141	208	208	290

(*a*) Includes particulars of cases transferred from the former Indeterminate Sentences Board to tbe Parole Board on 1 October 1964. (*b*) Six months ended June 1965. (*c*) Year ended 30 June. (*d*) Nine months ended June 1965.

PUBLIC SAFETY

National Safety Council

The formation of the National Safety Council of Western Australia arose out of discussions among office bearers and senior officials of the Royal Automobile Club of Western Australia concerning ways and means of establishing an organisation for the prevention of accidents. Following a conference between police and education authorities and officers of the Royal Automobile Club, and agreement with the State Government in respect of financial arrangements, the National Safety Council of Western Australia was established. The first meeting of the Council was held on 29 January 1946. In 1947 the Australian Road Safety Council was formed and the National Safety Council of Western Australia was nominated by the State Government to receive a proportion of the Commonwealth grant for the promotion of road safety. The Industrial Division of the Council was established in 1961, the Home Safety Division in 1963 and the Water Safety Division in 1965. The Safety Instructional Centre at Mount Lawley has a safety training area of some eighteen acres which includes road systems, buildings and equipment for the training of adults and juveniles in each field of activity.

In November 1965 the National Safety Council of Western Australia was affiliated with the National Safety Council of Australia and became the Western Australian Division of that Council. The objects of the Council are to devise and encourage the adoption of safety measures of all kinds; to promote discussion of all matters relating to safety measures; to conduct an educational campaign among the people of Australia to stimulate the adoption and observance of safety measures; and to consider, initiate and support improvements in the laws of the Commonwealth of Australia, the States and local governing bodies, calculated to prevent accidents.

(10)—5074

Fire Protection

Western Australian Fire Brigades Board. The *Fire Brigades Act, 1942-1966* constitutes the Western Australian Fire Brigades Board of ten members. The Board comprises two members appointed by the Governor, one of whom is president of the Board; three members elected by the insurance companies carrying on business in the State; one member elected by the Council of the City of Perth; three members elected by other local government authorities; and one member elected by the registered volunteer fire brigades. The general duties of the Board are to take, superintend and enforce all necessary steps for the prevention and extinguishing of fires and the protection of life and property from fire, and the control of all fire brigade premises and of all fire brigades.

Thirteen permanent and two volunteer brigades operate in the metropolitan fire district centred on the City of Perth. Permanent brigade personnel serve with volunteer brigade personnel in five large country centres, and volunteer brigades provide town fire protection at some fifty other centres. During the year ended June 1969, brigades attended 3,669 calls in the metropolitan fire district and 1,032 calls in country fire districts. At 30 June 1969, the Board had 425 employees and there were 1,440 volunteer brigade officers and firemen.

Bush Fires Board. The Bush Fires Board, which is constituted under the *Bush Fires Act, 1954-1969*, consists of thirteen members appointed by the Governor on the recommendation of the Minister. It comprises the Under Secretary for Lands as chairman; six persons nominated by the Country Shire Councils' Association of W.A.; and one person nominated by each of the following: the Minister for Forests, the Minister for Agriculture, The Western Australian Government Railways Commission, the Fire and Accident Underwriters' Association of Western Australia, the Commissioner of Police, and the Associated Sawmillers and Timber Merchants. The principal functions of the Board are to report to the Minister on methods of preventing or extinguishing bush fires; to recommend the prohibited burning times to be declared for the whole or any part of the State for any yearly period; to carry out such fire prevention measures as it considers necessary; to carry out research in connection with fire prevention and control; and to conduct publicity campaigns for the purpose of improving fire prevention measures.

At 30 June 1969, there were 947 bush fire brigades comprising 6,722 members, mainly volunteers. During the 1968-69 season, some 875,000 acres (mostly scrub and undeveloped land) were destroyed by fire. The principal cause was 'escape of burning-off operations', which accounted for 32 per cent of all fires. Other fires were caused mainly by burning rubbish, and sparks from vehicles, tractors and cigarettes. The burning of protective fire breaks is carried out by bush fire brigades throughout the agricultural areas.

CHAPTER VI—FINANCE

Part 1—Public Finance

In Western Australia there are three groups of authorities responsible for the collection and expenditure of public moneys. They are the State Government and associated semi-governmental authorities; the Commonwealth Government; and the local government authorities, comprising City Councils, Town Councils and Shire Councils.

COMMONWEALTH-STATE FINANCIAL RELATIONS

The Financial Agreement of 1927

Under the terms of the Financial Agreement, the Commonwealth Government took over from the States their public debts existing at 30 June 1927 and assumed responsibility for all future loan raisings by the Australian Governments. The Commonwealth also agreed to contribute annually for a period of fifty-eight years from 1 July 1927 an amount of $15,169,824 towards the interest payable on the States' debts, Western Australia's share of this amount being $946,864.

Sinking Funds established by the Financial Agreement between the Commonwealth and the States are designed to redeem the States' debts as follows: (*a*) debt existing at 30 June 1927, in a period of fifty-eight years thereafter ; (*b*) debt incurred after 30 June 1927 (except for the purpose of financing revenue deficits), in a period of fifty-three years from the date of creation of the debt ; (*c*) debt incurred to finance revenue deficits for the years 1929-30 to 1934-35, in a period of thirty-nine years from 30 June 1944 ; and (*d*) debt incurred to finance other revenue deficits, in a period of approximately seventeen years from the date of its creation.

These Sinking Funds are under the control of the National Debt Commission. Receipts of the Funds consist mainly of contributions from the Consolidated Revenue Funds of the Commonwealth and the States. The Commonwealth and the States make annual contributions of $\frac{1}{8}$ per cent and $\frac{1}{4}$ per cent respectively towards the redemption of debt existing at 30 June 1927, and further annual contributions of $\frac{1}{4}$ per cent each towards the redemption of debt created since that date, with the exception of debt incurred to finance revenue deficits. In respect of debt incurred to finance revenue deficits during the years 1929-30 to 1934-35, the Commonwealth makes an annual contribution of $\frac{1}{4}$ per cent and the States an annual contribution of $\frac{3}{4}$ per cent. In respect of debt incurred to finance all other revenue deficits, contributions are at a rate of not less than 4 per cent per annum, and are the sole responsibility of the States concerned. In addition to the foregoing contributions, the States make an annual contribution of $4\frac{1}{2}$ per cent on the face value of securities redeemed from their Sinking Funds, which in effect accumulates the original contributions and ensures that funds are approximately sufficient to repurchase or redeem the full amount of all debt in a period of fifty-three years.

Subject to the Financial Agreement, the contributions of the Commonwealth and the States in respect of the States' debts are applied by the Commission to the redemption of the public debts of the States, the redemption of loans raised by the Commonwealth for and on behalf of the States, and the repurchase of securities issued in respect thereof. Under the provisions of the Financial Agreement, repurchased or redeemed securities must be cancelled, and the debts of the States are reduced accordingly.

The Australian Loan Council

The Australian Loan Council was established by the Financial Agreement Act of 1928 to co-ordinate the public borrowings of the Commonwealth and the States. The Council has as its Chairman the Prime Minister of the Commonwealth, or a Minister

nominated by him, and the other members are the Premiers of the States or, in the absence of a Premier, a Minister nominated by him. The Commonwealth and each State submits to the Council a programme of its desired loan raisings during each financial year, including the amount of any revenue deficit to be funded. The Commonwealth Government's borrowings for defence purposes are expressly excluded from its submissions to the Council. If the Council decides that the total amount of the loan programme for a year cannot be borrowed at reasonable rates and conditions, it decides the amount to be borrowed during the year, and may by unanimous decision allocate this amount between the Commonwealth and the States. Where the members fail to arrive at a unanimous decision the Commonwealth is entitled to a maximum of one-fifth of the total sum to be borrowed. Of the balance, each State is entitled to an amount in the proportion which its net loan expenditure during the preceding five years bears to the aggregate for all the States.

The Commonwealth Grants Commission

Section 96 of the Commonwealth Constitution provides that the States may be granted financial assistance and Western Australia has regularly received assistance under this provision. In 1933 the Commonwealth Parliament passed the Commonwealth Grants Commission Act establishing a Commission of three members to inquire into and report on applications made by States for grants of financial aid. During the initial period of its work the Commonwealth Grants Commission considered compensation for disabilities arising from Federation as a possible basis upon which its recommendations should be made. It considered also the basis of financial need. In its Third Report, submitted in 1936, the Commission finally rejected the principle of compensation for disabilities arising from Federation, and chose instead the principle of financial need, having come to the conclusion that 'special grants are justified when a State through financial stress from any cause is unable efficiently to discharge its functions as a member of the Federation and should be determined by the amount of help found necessary to make it possible for that State by reasonable effort to function at a standard not appreciably below that of other States.' Another essential feature of special grants, noted in the Commission's Second Report, is that they are 'continuous in principle with other transfers of Commonwealth revenue to the States. They should be the amount required to complete the work begun by other transfers, and to reduce the financial inequality of the States sufficiently for the harmonious and effective working of Federal Government.'

In each year from 1934-35, in respect of which the Commission made its first recommendation, Western Australia has received a special grant. Western Australia has, however, ceased to be a claimant State from and including the year 1968-69, in accordance with an agreement made between the Commonwealth and the State at a Premiers' Conference in June 1968. In terms of this agreement the Commonwealth will pay to Western Australia an amount of $15·5 million in each of the years 1968-69 and 1969-70, in addition to the Financial Assistance Grant (see letterpress *Financial Assistance Grants* below), as a substitute for any special grant that might have been recommended by the Commission for those years.

The amounts received in the form of special grants during the period 1963-64 to 1967-68 are shown in the table on page 262.

Tax Reimbursements

With the passage of enabling legislation in 1942, the Commonwealth Government became the sole taxing authority in the field of income tax. At the time of introduction of this 'uniform tax scheme', Western Australia was levying three separate taxes on incomes. These were income tax on individuals and on companies, a hospital fund contribution, and a tax on the profits of gold-mining companies. The *States Grants (Income Tax Reimbursement) Act* 1942 provided for the payment to each State of a fixed annual amount by way of financial assistance to compensate for loss of revenue from income tax. The Act was repealed in 1946 by the States Grants (Tax Reimbursement)

Act which prescribed a fixed grant for each of the financial years 1946-47 and 1947-48 and, for subsequent years, an amount to be varied in accordance with changes in population and in average wages per person employed.

Special and Additional Financial Assistance

With the increasing financial needs of the States it became necessary for the Commonwealth Government to make grants in excess of those prescribed by the *States Grants (Tax Reimbursement) Act* 1946-1948. Financial aid was extended by a States Grants (Special Financial Assistance) Act passed in each year from 1951 to 1958 and 1969 and by the States Grants (Additional Assistance) Acts of 1958, 1962, 1963 and (No. 2) 1963.

Financial Assistance Grants

The *States Grants Act* 1959 repealed the States Grants (Tax Reimbursement) Act and provided for a new system of annual payments which are described as ' Financial Assistance Grants'. The Act incorporated an arrangement, unanimously agreed to by the States at a Premiers' Conference in June 1959, which was designed to eliminate the need for supplementary grants in the form of Special Financial Assistance and to reduce to a marginal level the special grants provided for under the *Commonwealth Grants Commission Act* 1933-1957.

The amount of the Financial Assistance Grant to Western Australia for 1959-60, the first year of operation of the scheme, was prescribed by the Act as $50,924,000. The grant was essentially a *per capita* payment, which varied as between States. For each year subsequent to 1959-60, this *per capita* payment was increased, if average wages paid in Australia as a whole increased in the preceding year, by a percentage equal to 1·1 times the percentage rise in average wages. By this means, not only were the effects on State finances of population changes and wage increases taken into account but a ' betterment factor ' was also introduced to enable a State Government to extend the range or improve the standard of its services.

The *States Grants Act* 1965-68 repeals the Act of 1959 and gives effect to an agreement, reached at a Premiers' Conference held at Canberra in June 1965, on a revised arrangement to operate for a period of five years from 1 July 1965. Under this arrangement the amount of the annual grant continues to be related to changes in a State's population and in the level of wages paid in Australia as a whole. The grant payable in respect of any year is determined by adjusting the amount of the previous year's grant for these two factors and increasing the result by 1·2 per cent. The Act provides that the system may be reviewed in relation to grants for any year subsequent to 1969-70.

The *States Grants Act* 1968 gives authority for the payment to Western Australia of an additional amount of $15·5 million in each of the years 1968-69 and 1969-70, to which reference is made above in the section *The Commonwealth Grants Commission.*

Other Financial Assistance

As well as providing general financial assistance to the States by means of grants, the Commonwealth Government allocates to them funds for specific purposes, as shown in the next table which gives details of payments made to Western Australia from the Consolidated Revenue Fund. Social service and national health benefits and homes savings grants are paid from the National Welfare Fund (see letterpress and table on pages 262-3). In addition, financial assistance for housing and war service land settlement is provided from Loan Fund.

FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA

Consolidated Revenue Fund

The following table gives particulars of payments made by the Commonwealth Government from Consolidated Revenue Fund to or on behalf of the Government of Western Australia in each of the financial years 1963-64 to 1967-68. Subsidy and bounty payments are not included, as particulars are not available for individual States.

COMMONWEALTH CONSOLIDATED REVENUE FUND
FINANCIAL ASSISTANCE TO WESTERN AUSTRALIA (a)
($'000)

Nature of payment	1963–64	1964–65	1965–66	1966–67	1967–68
Payments of a revenue nature—					
Financial Agreement—					
Interest on State debts	947	947	947	947	947
Sinking Fund contribution	1,519	1,616	1,726	1,844	1,986
General revenue grants—					
Financial Assistance Grants	65,597	70,498	78,474	86,396	96,152
Additional Assistance Grant (b)	3,764	....	....	....	....
Special Grants (c)	12,144	17,120	24,038	19,406	15,518
Education—					
University	1,595	2,060	2,152	2,306	2,652
Colleges of advanced education	....	....	....	363	776
Research grants	....	....	142	155	257
Development of resources and assistance to industry—					
Agricultural extension services	104	102	104	213	294
Health—					
Blood transfusion services	37	42	44	92	80
Other—					
Road safety practices	16	17	16	19	19
Coal mining industry long service leave	30	32	34	34	40
Housekeeper services	2	1	1	2	2
Total	85,756	92,436	107,679	111,778	118,724
Payments of a capital nature—					
Transport and communication—					
Commonwealth Aid Roads Acts	20,526	23,007	24,739	26,676	28,597
Beef cattle roads grants	1,500	1,500	1,500	1,500	1,400
Eyre Highway—Contribution to maintenance	25	25	25	25	25
Railway standardisation agreement (d)	7,526	10,265	17,828	17,996	19,458
Replacement of Derby jetty (e)	700	300	....	....	....
Education—					
University	1,161	940	901	1,160	567
Teachers' colleges	....	....	....	....	1,817
Colleges of advanced education	....	....	232	457	1,304
Technical training	....	714	269	551	1,323
Science laboratories in schools	....	708	502	899	912
Development of resources and assistance to industry—					
Water supplies (f)	....	....	1,250	1,250	1,500
Softwood forestry (f)	....	....	....	....	450
Investigation and measurement of water resources	....	136	211	235	260
Ord River irrigation agreement	1,466	1,468	1,112	....	100
Northern harbours (g)	700	1,100	1,154	....	....
Encouragement of meat production	....	....	....	8	....
Health—					
States Grants (Mental Health Institutions) Act (h)	332	447	338	260	148
Tuberculosis Act (h)	44	11	2	....	10
Other—					
Exmouth township development	....	380	750	1,952	417
Migrant centre	34	....	....	....	357
Total	34,014	41,001	50,813	52,969	58,645
GRAND TOTAL	119,770	133,437	158,492	164,746	177,369

(a) Excludes subsidy and bounty payments. Payments from the National Welfare Fund and War and Service Pension payments are also excluded. (b) As provided by the *States Grants (Additional Assistance) Act (No. 2)* 1963. (c) See letterpress *The Commonwealth Grants Commission* on page 260. (d) Includes repayable advances : 1963-64, $4,427,000 ; 1964-65, $6,038,000 ; 1965-66, $10,487,000 ; 1966-67, $10,586,000 ; 1967-68, $11,446,000. (e) Includes repayable advances : 1963-64, $350,000 ; 1964-65, $150,000. (f) Repayable advances. (g) Includes repayable advances : 1963-64, $350,000 ; 1964-65, $550,000; 1965-66, $577,000. (h) See letterpress on page 241.

National Welfare Fund

The National Welfare Fund was established in 1943 by the National Welfare Fund Act passed by the Commonwealth Parliament in that year. The purpose of the fund is to provide for the payment of social service and health benefits. Payments from the fund are made in respect of benefits only, and do not include the cost of administering the benefits nor of capital works associated with them. The fund receives each year from the Consolidated Revenue Fund an amount equal to the payments made. Other income of the National Welfare Fund is derived from interest on investments.

NATIONAL WELFARE FUND—PAYMENTS IN WESTERN AUSTRALIA (a)
($'000)

Pension or benefit	1963–64	1964–65	1965–66	1966–67	1967–68
Social services—					
Age and invalid pensions	27,373	29,413	30,760	33,794	36,418
Rehabilitation service	162	174	187	196	193
Funeral benefits	55	59	66	88	90
Widows' pensions	3,115	3,463	3,602	4,011	4,346
Unemployment, sickness and special benefits—					
Unemployment	1,403	842	368	374	304
Sickness	522	512	457	445	420
Special	54	46	47	36	33
Maternity allowances	546	534	536	559	605
Child endowment	12,994	13,406	13,624	15,498	14,845
Sheltered employment allowances (b)	....	....	....	....	5
Assistance for deserted wives (c)	....	....	....	....	35
National health services—					
Hospital benefits (d)	4,705	4,987	5,286	5,881	6,598
Medical benefits (e)	2,161	3,056	3,387	3,925	4,093
Medical benefits for pensioners	648	660	958	1,020	1,172
Pharmaceutical benefits	3,856	3,824	4,205	4,730	4,974
Pharmaceutical benefits for pensioners	1,386	1,470	1,665	1,989	2,143
Milk for school children	615	637	619	698	850
Tuberculosis campaign—					
Allowances	89	80	61	53	55
Maintenance (f)	751	742	697	547	807
Miscellaneous (g)	27	30	28	156	168
Homes savings grants	....	699	762	666	740
TOTAL	60,460	64,635	67,316	74,666	78,894

(a) For conditions applying to payment of social service and health benefits, see Chapter V, Part 5. (b) Payable from 6 July 1967. (c) As provided by the *States Grants (Deserted Wives) Act* 1968, effective from 1 January 1968. (d) For details, see table *Hospital Benefits—Western Australia* on page 238. (e) For details, see table *Medical Benefits—Western Australia* on page 239. (f) Figures exclude payments and reimbursements from Commonwealth Consolidated Revenue Fund in respect of capital expenditure by the State Government ; see preceeding table. (g) See letterpress *Miscellaneous Health Services* on page 241.

COMMONWEALTH AND STATE TAXATION

Commonwealth Taxation

COMMONWEALTH TAXATION—NET COLLECTIONS IN WESTERN AUSTRALIA
($'000)

Tax, duty, charge or levy	1963–64	1964–65	1965–66	1966–67	1967–68
Paid to Consolidated Revenue Fund—					
Income tax (a)	93,984	119,210	130,589	165,396	193,765
Customs duties (a)	9,782	10,074	13,359	11,839	16,604
Excise duties	37,746	43,083	53,077	57,673	62,349
Sales tax (a)	19,109	20,058	23,067	25,878	28,944
Pay-roll tax	8,045	8,746	10,192	11,574	13,204
Estate duty	1,459	1,784	1,652	2,267	2,551
Gift duty	488	479	611	962	602
Other	40	30	42	36	38
Total (a)	170,654	203,463	232,589	275,626	318,058
Other (b)—					
Wool tax	778	1,756	2,283	2,370	2,445
Export charges on primary products	68	46	41	42	29
Stevedoring industry charge	941	939	961	1,025	1,609
Dairy produce levy (c)	27	30	3	....	....
Butter fat levy (d)	....	....	65	61	59
Canning-fruit charge	(e)	(e)	....	1	1
Cattle slaughter levy (f)	65	101	(e)	....	....
Livestock slaughter levy (g)—					
Cattle	....	32	93	85	93
Sheep and lambs	....	9	28	62	81
Honey levy	7	9	9	8	7
Total	1,885	2,921	3,483	3,653	4,323
GRAND TOTAL (a)	172,539	206,384	236,072	279,279	322,381

(a) The amounts shown have been adjusted by offsetting remissions under special circumstances of income tax, customs duties and sales tax. (b) Transferred to trust funds or relevant authorities and used for purposes of the industry concerned. (c) Replaced by Butter fat levy from 1 July 1965. (d) Operative from 1 July 1965 ; see note (c). (e) Less than $500. (f) Discontinued 1 August 1964 ; see note (g). (g) Operative from 1 August 1964 ; see note (f).

It is important to note that, although the figures shown in the preceding table represent the amounts of taxes actually collected in Western Australia, they do not necessarily indicate the amounts contributed by the people of the State, as moneys may be collected in one State in respect of goods consumed or assessments made in other States. Further, administrative arrangements for the collection of certain taxes are such that a large proportion of the revenue (or, as in the case of Wheat Tax, the whole of the revenue) is brought to account in a State other than Western Australia.

Details of the purposes and rates applicable to the main forms of Commonwealth taxation are given in the *Official Year Book of the Commonwealth of Australia*: No. 55, 1969 on pages 303-5 (customs duties), 352 (excise duties), 763-70 (income tax), and 721-4 (other taxation).

Income Tax. Income tax is by far the most important source of Commonwealth revenue from taxation. The following table relates to assessments of tax on the incomes of individuals (*i.e.* excluding companies) resident in Western Australia. The term ' actual income ', as used in the table, refers to gross income (including ' exempt income ') *less* expenditure incurred in gaining that income. (The principal items of exempt income are social service benefits, war and service pensions, and income from gold mining and some other mining operations.) ' Taxable income ' is equal to actual income *less* exempt income and allowable deductions.

INCOME TAX ASSESSMENTS—RESIDENT INDIVIDUALS: WESTERN AUSTRALIA (*a*)
INCOME YEAR 1966-67 (ASSESSMENT YEAR 1967-68)

Grade of actual income	Number of taxpayers			Actual income	Taxable income			Net income tax assessed
	Males	Females	Persons		Salary and wages	Other income	Total	
$ $				$'000	$'000	$'000	$'000	$'000
417— 599	3,441	7,167	10,608	5,442	4,464	772	5,236	112
600— 799	4,804	10,041	14,845	10,465	8,482	1,258	9,740	311
800— 999	5,296	10,650	15,946	14,341	11,431	1,713	13,144	579
1,000— 1,199	6,015	11,260	17,275	19,026	14,659	2,521	17,180	956
1,200— 1,399	6,558	10,734	17,292	22,439	16,913	3,258	20,172	1,339
1,400— 1,599	6,848	11,083	17,931	26,932	20,178	3,884	24,063	1,842
1,600— 1,799	7,613	10,724	18,337	31,118	23,294	4,382	27,676	2,375
1,800— 1,999	9,302	7,132	16,434	31,223	21,672	5,262	26,934	2,504
2,000— 2,199	12,335	5,513	17,848	37,530	25,728	5,911	31,639	3,164
2,200— 2,399	14,469	4,106	18,575	42,723	28,603	6,308	34,911	3,700
2,400— 2,599	15,973	3,045	19,018	47,499	31,511	6,740	38,250	4,277
2,600— 2,799	16,834	2,283	19,117	51,588	34,219	6,653	40,872	4,826
2,800— 2,999	16,493	1,869	18,362	53,196	33,990	7,340	41,329	5,096
3,000— 3,199	16,244	1,558	17,802	55,124	35,315	7,259	42,573	5,511
3,200— 3,399	14,460	1,244	15,704	51,753	32,879	6,993	39,872	5,411
3,400— 3,599	11,841	1,069	12,910	45,140	27,901	6,912	34,813	4,952
3,600— 3,799	9,807	934	10,741	39,710	23,856	6,663	30,519	4,526
3,800— 3,999	8,447	821	9,268	36,104	21,610	6,380	27,990	4,335
4,000— 4,999	25,557	2,892	28,449	125,930	68,789	28,935	97,724	16,650
5,000— 5,999	11,760	1,677	13,437	73,073	33,912	23,444	57,355	11,315
6,000— 6,999	6,170	1,076	7,246	46,744	19,067	18,162	37,230	8,270
7,000— 7,999	3,447	731	4,178	31,167	10,450	15,010	25,460	6,221
8,000— 8,999	2,048	470	2,518	21,315	5,915	11,753	17,667	4,688
9,000— 9,999	1,347	364	1,711	16,192	3,784	9,844	13,628	3,887
10,000—11,999	1,779	435	2,214	24,065	5,233	15,187	20,420	6,343
12,000—13,999	871	202	1,073	13,857	2,373	9,580	11,954	4,104
14,000—15,999	531	120	651	9,722	1,208	7,275	8,482	3,142
16,000—17,999	345	71	416	7,049	855	5,403	6,257	2,504
18,000—19,999	192	37	229	4,340	533	3,280	3,813	1,574
20,000—29,999	337	65	402	9,398	1,023	7,329	8,352	3,907
30,000—39,999	57	11	68	2,303	247	1,793	2,039	1,076
40,000—49,999	17	2	19	846	100	637	737	412
50,000—59,999	13	3	16	856	30	704	734	425
60,000—79,999	8	2	10	675	51	507	559	338
80,000—99,999	5	....	5	453	5	375	379	236
100,000 and over	1	....	1	149	....	147	147	96
Total, Income year—								
1966–67	241,265	109,391	350,656	1,009,487	570,279	249,574	819,853	131,006
1965–66	231,479	99,993	331,472	904,680	503,426	225,575	729,001	111,087
1964–65	218,692	90,164	308,856	773,869	432,724	182,609	615,333	85,686
1963–64	212,819	84,758	297,577	727,305	385,533	186,289	571,822	74,007
1962–63	215,478	90,925	306,403	676,937	359,447	172,041	531,488	65,022

(*a*) Including Central Office assessments of Western Australian residents.

Additional tables, including particulars relating to companies, appear in *Part II—Public Finance* of the *Statistical Register of Western Australia.* The bulletin *Commonwealth Taxation Assessments,* published annually by the Commonwealth Statistician, Canberra, contains comprehensive statistical tables and details of rates of tax, allowable deductions and other conditions applying to tax on incomes of individuals and of companies.

State Taxation

The net amounts collected in Western Australia in the form of State taxation in each year from 1963-64 to 1967-68 are shown in the table on page 270. Information concerning rates of tax and the relevant legislation is given below.

ESTATE DUTY (PROBATE AND SUCCESSION DUTIES). The *Death Duties (Taxing) Act, 1934-1966* imposes duties on the estates of deceased persons and specifies the rates of duty. Conditions relating to probate and the administration of estates are contained in the *Administration Act, 1903-1969.* Differential rates of estate duty and amounts of exemption apply according to distinct categories of legatee. The following table shows the amounts of duty payable at 30 June 1969 on estates of persons who died after 12 December 1966, the date of commencement of the *Administration Act Amendment Act, 1966.*

ESTATE DUTY—AMOUNTS PAYABLE AT 30 JUNE 1969
CLASSIFIED ACCORDING TO VALUE OF ESTATE

Value of estate (*a*)	Amount payable where estate passes to—			
	Widow, widower, etc. (*b*)	Children aged 21 years or over (*c*)	Brothers, sisters, or parents	Any other person (*d*)
$	$	$	$	$
1,500	Nil	Nil	Nil	Nil
3,000	Nil	Nil	90	120
5,000	Nil	Nil	250	300
10,000	Nil	300	750	850
15,000	Nil	650	1,350	1,500
20,000	600	1,100	1,950	2,150
30,000	1,950	2,200	3,350	3,650
50,000	4,950	5,000	6,750	7,250
70,000	8,550	8,600	10,750	11,450
90,000	12,600	13,000	15,550	16,450
110,000	17,300	18,400	21,150	22,450
130,000	22,800	24,800	27,750	29,450
150,000	29,200	32,200	35,350	37,450
170,000	36,800	40,400	44,150	46,650
200,000	49,950	52,000	59,150	62,250
250,000	62,500	65,000	75,000	80,000
500,000	125,000	130,000	150,000	160,000

(*a*) Final balance of real and personal estate of the deceased person after deducting all debts. (*b*) Widow, widower, children aged under 21 years, wholly dependent adult children, or wholly dependent widowed mother, of the deceased. (*c*) Children aged 21 years or over (other than wholly dependent adult children) or other issue of the deceased. (*d*) Or any body corporate or unincorporate.

STAMP DUTIES. The *Stamp Act, 1921-1969* imposes stamp duties and prescribes the rates applying to a great number of transactions relating to a wide range of property, commodities and services.

LAND TAX. The *Land Tax Assessment Act, 1907-1969* authorises a tax, with certain specified exemptions, on every owner of land, and the rates of tax are prescribed by the *Land Tax Act, 1948-1969.* The following table shows the rates of tax and the amounts of tax payable, in respect of the assessment year 1968-69, on improved land and unimproved land of the values specified.

LAND TAX—RATES OF TAX AND AMOUNTS PAYABLE
ASSESSMENT YEAR 1968-69

Unimproved value—		Tax on amount in first column	Tax per dollar on remainder
Exceeding	Not exceeding		
	IMPROVED LAND		
$	$	$	cents
Nil	5,000	Nil	0·3
5,000	10,000	15	0·4
10,000	15,000	35	0·5
15,000	20,000	60	0·6
20,000	25,000	90	0·7
25,000	30,000	125	0·8
30,000	35,000	165	0·9
35,000	40,000	210	1·0
40,000	45,000	260	1·1
45,000	50,000	315	1·2
50,000	60,000	375	1·3
60,000	70,000	505	1·4
70,000	80,000	645	1·5
80,000	90,000	795	1·6
90,000	100,000	955	1·8
100,000	110,000	1,135	2·0
110,000	120,000	1,335	2·2
120,000	upwards	1,555	2·4
	UNIMPROVED LAND		
$	$	$	cents
Nil	5,000	Nil	1·00
5,000	10,000	50	1·25
10,000	15,000	112·5	1·50
15,000	20,000	187·5	1·75
20,000	30,000	275	2·00
30,000	40,000	475	2·25
40,000	50,000	700	2·50
50,000	60,000	950	2·75
60,000	80,000	1,225	3·00
80,000	100,000	1,825	3·25
100,000	upwards	2,475	3·50

LIQUOR LICENCES. Licences relating to the sale or supply of fermented and spirituous liquors are granted under the provisions of the *Licensing Act, 1911-1969*. The Act prescribes the fees payable in respect of licences authorising the sale of liquor. With certain minor exceptions, fees are assessed as a proportion of the gross amount paid for liquor purchased for licensed premises or, in the case of spirit merchants' and brewers' licences, the gross amount received for liquor sold. For the year 1969, the proportion prescribed by the Act was 5½ per cent.

TOTALISATOR AGENCY BOARD BETTING TAX. The *Totalisator Agency Board Betting Tax Act, 1960-1966* imposes a tax on all moneys paid to the Board in respect of bets made through or with the Board. The rate of tax payable at 30 June 1969 was 5½ per cent.

BETTING INVESTMENT TAX. The *Betting Investment Tax Act, 1959-1966* imposes a tax on each bet made by a bookmaker in registered premises and on each bet made through or with the Totalisator Agency Board. The amount of tax payable at 30 June 1969 was three cents on each such bet.

TOTALISATOR DUTY. The *Totalisator Duty Act, 1905-1960* authorises the payment of duty on the takings of totalisators operated by horse-racing clubs and prescribes the rates to be paid. Differential rates apply to totalisators operated within a radius of twenty-five miles from the General Post Office, Perth and those situated outside this area. In 1968-69, the principal rates of duty payable in respect of totalisators in the former area were 9 per cent of the gross takings from win and place transactions and 5 per cent

of the gross takings from wagering transactions known as 'jack pots', 'quinellas' and 'doubles'; for totalisators outside that area, the rate was 5 per cent in respect of all transactions.

BOOKMAKERS BETTING TAX. The *Bookmakers Betting Tax Act, 1954-1959* provides for a tax on money paid or promised as the consideration for bets made by or on behalf of bookmakers. In respect of turnover of the year ended 31 July 1969 the rates applying to on-course transactions were 1¼ per cent of amounts up to $100,000 and 1½ per cent of the remainder. For off-course transactions the rate was 2¼ per cent of amounts up to $50,000, the rate payable on each additional $50,000 of turnover increasing by ½ per cent up to $300,000; on turnover exceeding $300,000 the rate was 3½ per cent.

TOTALISATOR LICENCES. The *Totalisator Regulation Act, 1911* provides for the licensing of totalisators operated by horse-racing clubs. Licence fees are prescribed by regulation and are payable annually in respect of the calendar year. For the year 1969 the fee payable was $2 for each $2,000 (or part of $2,000) passing through the totalisator.

MOTOR VEHICLE REGISTRATION FEES. The *Traffic Act, 1919-1969* provides for the registration of vehicles and prescribes the licence fees to be paid in respect of the several classes of vehicles required to be registered. Fees are based on the tare weight of the vehicle (except for motor cycles, which are subject to a standard fee). In 1969 the annual licence fee for a motor car or station wagon, for example, was $2 where the tare weight did not exceed one cwt, the fee increasing progressively to $39 where the tare weight was thirty-one cwt, and thereafter by $1 for each additional cwt. The annual fee for a motor cycle was $5. The fee payable on transfer of a licence was $2 in the case of a motor car or station wagon, and $1 in the case of a motor cycle.

MOTOR VEHICLE DRIVERS' LICENCES. The *Traffic Act, 1919-1969* authorises the issue of drivers' licences to persons of a minimum age of seventeen years, specifies other conditions to be satisfied, and prescribes the fees to be paid on application for, and issue or renewal, of a licence. In 1969 the fee payable on application was $4, and on issue or annual renewal $3 (or $1 in the case of a licence to drive a passenger vehicle).

MOTOR VEHICLE THIRD PARTY INSURANCE SURCHARGE. The *Motor Vehicle (Third Party Insurance Surcharge) Act, 1962-1968* imposes a surcharge of $2 per annum on premiums paid in respect of policies of insurance with The Motor Vehicle Insurance Trust.

ROAD MAINTENANCE CONTRIBUTION. The *Road Maintenance (Contribution) Act, 1965* imposes a charge on the operations of any commercial goods vehicle having a load capacity of more than eight tons. In 1969 the rate of the charge was five-eighteenths of a cent per ton-mile calculated on the basis of the tare weight plus two-fifths of the load capacity. The Act provides that, in specified circumstances, the charge may be levied on vehicles having a load capacity of eight tons or less.

TRANSPORT COMMISSION LICENCES. The *Road and Air Transport Commission Act, 1966-1968* provides for the licensing of public vehicles in the categories of omnibus, commercial goods vehicle, trailer or semi-trailer, and aircraft. Licence fees are as determined from time to time by the Commissioner of Transport, subject to certain maximum charges prescribed by the Act. In the case of an omnibus, for example, the fee may not exceed 6 per cent of the gross earnings, or $10 per annum for each unit of the maximum number of passengers which it is licensed to carry, the basis of assessment being that considered by the Commissioner to be the more appropriate.

PASSENGER VEHICLE AND CARRIERS' LICENCES. Prior to the operation of the *Traffic Act Amendment Act (No. 4), 1965* the annual fee payable under the provisions of the Traffic Act for a passenger vehicle licence (subject to certain exceptions) or a carriers' licence was $1.50 per wheel or per pair of dual wheels. The fee was abolished with effect from 1 December 1965.

TAXI CONTROL BOARD LICENCES. The *Taxi-cars (Co-ordination and Control) Act, 1963-1968*, under which the Taxi Control Board is constituted, requires that taxi-cars operating

in the Metropolitan Traffic Area and other areas as declared shall be licensed, and prescribes maximum fees payable. In 1969 these fees were $30 on the issue or annual renewal of a licence, and $4 on the transfer of a licence.

METROPOLITAN REGION IMPROVEMENT TAX. The *Metropolitan Region Improvement Tax Act, 1959-1966* authorises a tax, with certain specified exemptions, on every owner of land within the Metropolitan Planning Region. (The Region is coterminous with the Perth Statistical Division; see map at back of Year Book.) The rate of tax payable for the assessment year ended 30 June 1969 was one-quarter of a cent for every dollar of the unimproved value of all land chargeable with the tax.

VERMIN RATE. The *Vermin Act, 1918-1965*, in addition to prescribing levies imposed for the purposes of local Vermin Boards, authorises a special vermin rate, the revenue from which is used by the Agriculture Protection Board for the control or eradication of animals, birds and insects declared to be vermin within the meaning of the Act. Subject to certain exemptions, every holding of an area of more than five acres is rateable. The rate, as prescribed by the Act, may not exceed two and one-half cents in the dollar of the unimproved capital value in the case of land held under pastoral lease, or five-twelfths of a cent in the dollar in the case of other holdings. For the assessment year 1968-69, the rate was two cents in the dollar on pastoral leases and 0·17 of a cent in the dollar on other holdings.

NOXIOUS WEEDS RATE. The *Noxious Weeds Act, 1950-1969* contains provisions relating to noxious weeds which are generally similar to those of the Vermin Act in relation to declared vermin. The maximum rate as prescribed by the Act is, in the case of a pastoral lease, one and one-quarter cents and, in the case of other land, five twenty-fourths of a cent in the dollar of the unimproved value of the holding. In 1968-69 the rate was not levied in respect of pastoral land. The rate payable on other land was two twenty-fifths of a cent in the dollar.

FRUIT FLY ERADICATION. The *Plant Diseases Act, 1914-1969* provides for the compulsory registration of orchards and prescribes registration fees, which are paid to a fund to finance the control, prevention, and eradication of the fruit fly pest. In 1969 the annual fee payable for an orchard containing twenty-four trees or less was twenty cents; for an orchard containing more than twenty-four but less than one hundred trees, fifty cents; and for an orchard of not less than one acre, fifty cents per acre and fifty cents for each additional part of an acre.

STATE GOVERNMENT FINANCE

Moneys collected and expended by the State Government are dealt with through accounts based on funds of three types, the Consolidated Revenue Fund, the General Loan Fund and Trust Funds. The transactions of these Funds are summarised in the Public Accounts prepared each year by the Treasurer and in the Financial Statement presented to the Parliament by the Treasurer in introducing the annual budget.

Public finance statistics published by the States are limited generally to dissections of the revenue, loan and debt transactions of State Governments and local government authorities. Limited analysis of other State Government accounts, such as trust funds, and the revenue accounts and balance sheets of semi-government authorities, has made it difficult to obtain aggregations of receipts and outlay of public authorities taken as a whole.

Accordingly, a considerable amount of work has been done in recent years on the development of a new system with the aim of providing comprehensive statistics of the financial transactions of all public authorities. This information is required by government departments and many other users for economic analysis and social inquiries, and for a wide variety of other purposes.

Comprehensive statistics compiled on the new basis have not yet been published for the several States. However, information for Australia as a whole appears in *Australian National Accounts : National Income and Expenditure*, published annually by the Commonwealth Statistician, Canberra.

Consolidated Revenue Fund

All State revenues, apart from those which are credited to trust or special accounts, are paid into the Consolidated Revenue Fund. Disbursements from the Fund are authorised by the Parliament, each year under an Appropriation Act, or under Special Acts subject to periodical review. Among the permanent appropriations by Special Acts are such items as the salaries of the Governor of Western Australia, the Judges of the Supreme Court and Members of Parliament, interest charges on the public debt, contributions to the Public Debt Sinking Fund, payments to the State Superannuation Fund and the annual subsidy to the University of Western Australia.

The principal sources of revenue, as shown in the following table, are the grants and other financial assistance received from the Commonwealth Government; the income of public utilities; departmental revenues from reimbursements, fees and services; taxation; and territorial revenues.

The payments made to Western Australia by the Commonwealth Government from Consolidated Revenue during each of the years from 1963-64 to 1967-68 appear in the table on page 262. Not all of these moneys are paid to the State Consolidated Revenue Fund, as some of them are provided for specific purposes and are therefore paid to trust or other accounts.

CONSOLIDATED REVENUE FUND—SOURCES OF REVENUE
($'000)

Nature of revenue	1963–64	1964–65	1965–66	1966–67	1967–68
Collected by the State—					
Taxation (*a*)	17,604	19,512	22,574	27,536	34,916
Territorial revenues (*b*)	3,751	4,107	4,598	7,655	11,845
Public utilities—					
Railways	34,929	36,381	41,864	48,194	51,183
Water supplies, sewerage and drainage	9,968	(*c*) 2,906	(*c*) 3,308	(*c*) 4,073	(*c*) 4,500
Other public utilities	480	491	511	520	543
Departmental revenue—Reimbursements, fees, etc.	20,948	26,712	28,753	31,461	33,135
Other	1,222	1,468	1,589	1,959	1,999
Total	88,901	(*c*) 91,578	(*c*) 103,196	(*c*) 121,398	(*c*) 138,121
Received from the Commonwealth (*d*)—					
Interest on State debts	947	947	947	947	947
Special grants	12,144	17,120	24,038	19,406	15,518
Financial assistance grants	65,597	70,498	78,474	86,396	96,152
Additional financial assistance	300	....	....	....	....
Total	78,988	88,565	103,459	106,748	112,617
GRAND TOTAL	167,888	(*c*) 180,143	(*c*) 206,655	(*c*) 228,146	(*c*) 250,738

(*a*) For net amounts collected, see table *Net Collections of State Taxation* on page 270. (*b*) Comprises revenue from royalties, sales, leases and licences relating to land, mining and timber. (*c*) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1 July 1964. (*d*) See table on page 262.

In the five-year period ended 30 June 1968, revenues collected by the State amounted to $543 million. Of this total $240 million (44·2 per cent) came from public utilities, the principal contributor being government railways which accounted for $213 million. Departmental revenues amounted to $141 million, or 26·0 per cent of the total collected by the State. The main contributing Departments in 1967-68 were Treasury ($17·6 million, including $16·7 million on account of interest and sinking funds), Harbour and Light ($3·24 million), Police ($1·57 million), Forests ($1·42 million), Public Works ($1·22 million), Printing ($1·17 million), Education ($0·89 million), and Agriculture ($0·65 million).

The figures appearing against the item 'Taxation' comprise Consolidated Revenue Fund receipts from probate and succession duties, stamp duties, land tax, liquor licences, totalisator duty and licences, bookmakers betting tax, bookmakers' licences, Totalisator Agency Board betting tax, betting investment tax, motor vehicle third party insurance surcharge, and certain licences in addition to those already mentioned. Some account of the rates and conditions applying to the several taxes and other levies is given in the section *Commonwealth and State Taxation* on pages 265-8.

Territorial revenues are those derived from royalties, sales of Crown land, and the issue of leases, licences and permits in connection with land, mining and timber. Reference to the several types of tenure in these categories will be found in Chapter VII, Part 1—*Land Tenure and Settlement.*

There has been a considerable increase in recent years in revenue for mining royalties, due principally to greatly accelerated exploitation of iron-ore and nickel deposits and the commencement of oil drilling on a commercial scale. Reference to these developments will be found in the final section, *Mining and Quarrying*, of Chapter VIII, Part 1. Collections of royalties on all minerals amounted to $0·24 million in 1963-64, $0·29 million in 1964-65, $0·48 million in 1965-66, $2·64 million in 1966-67 and $6·24 million in 1967-68. Total revenue from this source in 1968-69 was $11·0 million, comprising $9·03 million from iron ore, $1·39 million from crude petroleum, $0·30 million from nickel, $0·12 million from bauxite, $0·06 million from ilmenite, and $0·10 million from all other minerals.

The following table gives details of net collections of State taxation. Payments to trust or special accounts as well as to Consolidated Revenue are shown.

NET COLLECTIONS OF STATE TAXATION
($'000)

Nature of tax	1963–64	1964–65	1965–66	1966–67	1967-68
Paid to Consolidated Revenue Fund—					
Probate and succession duties	3,069	3,006	3,924	4,765	5,162
Stamp duties not elsewhere included	6,849	7,670	8,709	11,681	16,669
Land	2,646	2,831	3,324	3,514	4,702
Liquor licences	1,809	1,927	2,013	2,323	2,566
Racing—					
Totalisator Agency Board betting tax	1,355	1,680	1,794	1,971	2,099
Betting investment tax	440	514	549	574	579
Totalisator duty	279	307	356	395	448
Bookmakers betting tax and licences	174	132	134	152	165
Stamp duty on betting tickets	64	58	56	55	61
Totalisator licences	5	5	5	6	7
Stamp duty on totalisator dividends (*a*)	1	1	1	1	(*a*)
Motor vehicle—					
Registration fees (*b*)	29	51	(*c*) 24	(*c*)	(*c*)
Drivers' and riders' licences and fees (*b*) (*d*)	92	127	168	693	760
Stamp duty on registration and transfer	272	690	965	1,306	1,555
Third party insurance surcharge	538	572	609	661	700
Other	4	11	6	22	19
Licences not elsewhere included	521	595	565	600	693
Total	18,146	20,176	23,203	28,719	36,185
Paid to trust or special accounts—					
Motor vehicle (*e*)—					
Registration fees (*f*) (*g*)	6,852	7,406	8,944	10,357	10,936
Drivers' and riders' licences (*g*)	649	658	891	545	588
Road maintenance contribution	....	....	392	2,540	2,873
Transport Commission licences	199	248	315	358	499
Passenger vehicle and carriers' licences (*h*)	42	39	(*h*) 25	(*h*)	(*h*)
Taxi Control Board licences	....	17	15	15	16
Other	2	2	2	3	4
Other vehicle registration fees	9	13	20	18	36
Metropolitan region improvement	390	474	489	550	1,101
Vermin	307	374	450	441	534
Noxious weeds	....	56	82	140	205
Fruit fly eradication	36	42	41	37	36
Total	8,484	9,329	11,667	15,003	16,827
GRAND TOTAL	26,630	29,504	34,869	43,722	53,012

(*a*) Abolished with effect from 1 February 1967. (*b*) Part collections only; for amounts paid to trust or special accounts, see below. (*c*) From 1 December 1965, fees previously paid to Consolidated Revenue Fund under this heading have been credited to the Main Roads Trust Account and included in 'Registration fees' below. (*d*) Includes conductors' licences. (*e*) See letterpress *Finance for Roads*, Chapter IX, Part 3. (*f*) For purposes of comparison with other States, fees collected by local government authorities outside the Metropolitan Traffic Area have been treated as State taxation and included here. See also table *Summary of Local Government Revenue* on page 279. (*g*) Part collections only; for amounts paid to Consolidated Revenue Fund, see above. (*h*) Abolished with effect from 1 December 1965.

The amounts shown in the preceding table are grouped according to the nature of the tax rather than the method of collection. Thus stamp duties on betting tickets and revenue from bookmakers' licences and totalisator licences are included under the heading 'Racing' and not under 'Stamp duties' or 'Licences'. It will be seen that, although

the figures represent net collections, the aggregates of the amounts shown as payments to the Consolidated Revenue Fund exceed those appearing as taxation revenue (gross) in the table on page 269. This is accounted for by the fact that some types of licences and other fees are not included under the heading of taxation in the Public Accounts, earnings from them being credited to departmental revenue. Items dealt with in this way include drivers' and riders' licences and fees as shown in the first part of the table, as well as licences relating to firearms; factories and shops; fishing, pearling and game; and marine collectors. Other moneys paid to departmental revenue are fees collected under the provisions of the Companies Act and the Business Names Act.

Motor vehicle taxation shown as paid to Consolidated Revenue under the heading 'Stamp duty on registration and transfer' is collected by authority of the *Stamp Act, 1921-1969*. An amendment to the Act, effective from 31 December 1963, imposed a duty, subject to certain statutory exemptions, on a motor vehicle licence or the transfer of a licence at the rate of $1 for every $200, or part of $200, of the value of the vehicle to which the licence or transfer relates. A further amendment to the Act increased the rate to $1.50 with effect from 1 December 1965.

CONSOLIDATED REVENUE FUND
EXPENDITURE ACCORDING TO NATURE OF SERVICE
($'000)

Nature of expenditure	1963–64	1964–65	1965–66	1966–67	1967–68
Expenditure on public utilities—					
Railways	35,340	36,965	40,300	45,397	52,173
Water supplies, sewerage and drainage	8,036	(a) 5,441	(a) 5,852	(a) 6,779	(a) 7,583
Other	872	954	955	1,006	972
Total	44,247	(a) 43,360	(a) 47,106	(a) 53,182	(a) 60,728
Departmental expenditure—					
Agriculture	3,047	3,215	3,519	3,967	4,359
Child Welfare	1,586	1,720	1,879	2,130	2,272
Crown Law	1,772	1,976	2,189	2,596	2,831
Education	25,880	29,133	34,016	36,746	41,224
Forests (b)	1,090	1,248	1,297	1,402	1,577
Harbour and Light	1,105	1,299	1,540	1,514	1,896
Industrial Development	659	647	761	866	970
Lands and Surveys	2,353	2,408	2,616	3,087	3,535
Mental Health Services	2,836	3,152	3,481	4,215	4,800
Metropolitan (Perth) Passenger Transport Trust—Recoup of loss	840	956	1,325	618	552
Mines	1,453	1,639	1,780	2,011	2,495
Native Welfare	1,517	1,860	2,131	2,245	2,670
Police	4,633	5,166	5,529	6,119	6,879
Printing	1,384	1,449	1,631	978	950
Prisons	804	878	949	1,271	1,677
Public Health	15,869	18,009	19,605	22,213	24,494
Public Works	4,991	5,359	6,196	7,252	8,092
Treasury	314	339	353	471	488
University of Western Australia—Additional payments (b)	1,928	2,421	2,831	2,901	3,460
War Service Land Settlement Scheme—Contribution to capital losses	145	459	1,382	1,400	1,400
Western Australian Coastal Shipping Commission (c)—Recoup of loss	2,452	2,805	2,481	2,357	2,629
Other	11,356	13,556	16,480	18,327	16,632
Total	88,014	99,694	113,971	124,686	135,881
Expenditure under special Acts—					
Forests Act (d)	1,956	2,152	2,363	2,874	2,948
Loan Acts (public debt)					
Interest (e)	25,925	28,223	31,023	34,217	36,032
Sinking fund contributions	5,847	6,446	6,903	7,445	7,832
Parliamentary salaries and allowances	562	566	705	719	716
Superannuation Acts—Government employees	2,410	2,587	2,709	2,855	3,256
University of Western Australia Act (d)	500	500	500	500	500
Other	945	1,005	1,061	1,330	1,632
Total	38,144	41,478	45,264	49,939	52,916
Other expenditure	275	307	324	366	385
GRAND TOTAL	170,681	(a) 184,840	(a) 206,665	(a) 228,174	(a)249,909

(a) Excludes particulars of the Metropolitan Water Supply, Sewerage, and Drainage Board which replaced the former Metropolitan Water Supply, Sewerage and Drainage Department from 1 July 1964. (b) For expenditure under Special Acts, see below. (c) The Western Australian Coastal Shipping Commission replaced the former State Shipping Service with effect from 15 November 1965. (d) For additional payments, see *Departmental Expenditure* above. (e) From 1966–67, includes exchange on overseas payments previously charged to *Departmental Expenditure*.

In the five-year period ended 30 June 1968, expenditure under the heading ' Departmental ' amounted to $562 million, or 54·0 per cent of all expenditure from the Consolidated Revenue Fund. Education ($167 million) and Public Health ($100 million) together accounted for 47·5 per cent of Departmental expenditure. Other large items were those attributable to Public Works ($31·9 million), Police ($28·3 million), Mental Health Services ($18·5 million), Agriculture ($18·1 million), and Lands and Surveys ($14·0 million).

Expenditure on public utilities ($249 million) amounted to 23·9 per cent of the total, the predominant item being Railways ($210 million).

Commitments under Special Acts accounted for $228 million, or 21·9 per cent of all expenditure. The principal amounts were those relating to Loan Acts ($190 million) and legislation providing pensions for government employees ($13·8 million).

The amount paid under the *Forests Act, 1918-1969* represents nine-tenths of the net annual revenue of the Department and is credited to a fund for forests improvement and reforestation. The *University of Western Australia Act, 1911-1969* provides for the payment of an annual subsidy of $500,000 and ' such additional amounts as may be appropriated by Parliament from time to time'. In 1967-68 additional payments amounting to $3·46 million were made from Departmental expenditure. Further details of University finance are given in Chapter V, Part 1.

The particulars shown in the preceding table and in the table on page 269 are an abridged form of the presentation given in the Public Accounts. It is, of course, possible to present the figures of income and expenditure of the Consolidated Revenue Fund on other bases for particular purposes. One such grouping is a dissection according to function as in the following table. The classification used has been summarised for the purposes of this table from a more detailed statement appearing in the *Statistical Register of Western Australia—Part II, Public Finance.*

CONSOLIDATED REVENUE FUND
REVENUE AND EXPENDITURE CLASSIFIED ACCORDING TO FUNCTION
($'000)

Function	1966–67			1967–68		
	Revenue	Expenditure		Revenue	Expenditure	
		Gross	Net		Gross	Net
Legislation	....	1,261	1,261	....	1,519	1,519
General administration and services, not elsewhere included	137,751	12,340	Cr. 125,412	152,034	8,566	Cr. 143,468
Law, order and public safety	1,939	10,722	8,783	2,348	12,018	9,670
Education	907	43,328	42,420	977	49,463	48,486
Cultural and recreational facilities	....	1,446	1,446	....	1,781	1,781
Public health	1,105	26,976	25,871	1,384	29,898	28,514
Welfare	295	4,925	4,630	307	5,774	5,467
War and defence	....	69	69	....	94	94
Immigration	....	359	359	....	353	353
Regulation of trade and industry and industrial safety	491	788	297	544	909	365
Development and conservation of natural resources and assistance to industry	*15,866	*28,850	*12,984	20,965	32,168	11,203
Transport and communication	50,895	51,238	343	54,629	58,601	3,972
Power, fuel and light	238	173	Cr. 64	306	192	Cr. 114
Housing	11	52	41	11	60	50
Banking and insurance	367	67	Cr. 300	124	74	Cr. 50
Public debt charges	17,898	41,968	24,070	16,669	44,183	27,514
Miscellaneous	383	3,613	3,230	441	4,256	3,815
Total	228,146	228,174	(*a*) 27	250,738	249,909	(*b*) Cr. 829

(*a*) Published Budget deficit, $27,494. (*b*) Published Budget surplus, $828,636. * Revised.

The table is designed to show (in respect of the Consolidated Revenue Fund only) the gross and net cost of each function of Government irrespective of the Department or Departments administering these functions. In cases where an activity is such that

it involves more than one function, each of its components has been included in that function which is considered to be the most appropriate. For example, in classifying expenditure attributable to child welfare, the custody and care of delinquent children is included under ' Law, order and public safety ' and the education of children in institutions under ' Education ', only the balance being assigned to the item ' Welfare '.

The amount shown as revenue under the heading ' General administration and services, not elsewhere included ' is more than three-fifths of the total. The item includes receipts from the Commonwealth in the form of Special Grants and Financial Assistance Grants as well as taxation collected by the State (see table on page 269), amounting in all to $133·3 million in 1966-67 and $146·6 million in 1967-68.

By a provision of the *State Government Insurance Office Act, 1938-1965* the State Government Insurance Office is required to pay each year to the Treasury the equivalent of the amount of State taxes on profits or income that any insurance company, other than a life insurance company, would be liable to pay. The amounts shown as revenue under ' Banking and insurance ' include sums of $359,830 for 1966-67 and $115,369 for 1967-68 in relation to such payments. The expenditure under the heading of 'Banking and insurance ' comprises mainly reimbursements from the Treasury to The Rural and Industries Bank of Western Australia of administration expenses incurred in the conduct of its Government Agency Department. These recoups amounted to $60,533 in 1966-67 and $71,382 in 1967-68.

General Loan Fund and Public Debt

General Loan Fund. The first Loan Act in Western Australia was assented to in 1872 and gave authority for the raising of a loan for public works, mainly in connection with harbours and rivers, for the purchase of the Perth-Fremantle telegraph line and for railway surveys in the Champion Bay district. A General Loan Fund was established by the Loans Consolidation Act of 1896 which provided for the merging in the Fund of all loan balances unexpended at 30 June 1896, and since that time the proceeds of each new loan have been paid to the credit of the General Loan Fund.

NET LOAN EXPENDITURE
($'000)

Nature of expenditure	From 1872 to 30 June 1963	1963–64	1964–65	1965–66	1966–67	1967–68	From 1872 to 30 June 1968
Public works, services, etc.—							
Railways, tramways and omnibuses	156,968	7,496	6,800	7,628	9,068	7,750	195,710
Electricity supply	42,647	....	794	1,434	2,427	4,542	51,845
Harbours and rivers	41,213	3,028	2,822	2,583	1,746	2,402	53,795
Public buildings—							
Schools	47,471	5,753	7,008	7,690	8,450	8,580	84,953
Hospitals	33,111	5,032	6,514	6,568	6,021	6,365	63,611
Other	15,211	4,844	6,426	5,650	3,759	3,871	39,761
Housing (*a*)	32,428	3,382	1,539	1,151	3,082	2,648	44,231
Water supplies, sewerage, drainage and irrigation	138,333	10,537	10,957	12,667	13,642	14,552	200,688
Development of goldfields and mineral resources	15,718	113	126	401	128	334	16,820
Development of agriculture	56,519	490	429	463	443	697	59,040
Miscellaneous	69,194	2,424	3,362	1,564	2,250	1,436	80,230
Total	648,813	43,100	46,779	47,800	51,015	53,177	890,684
Other expenditure—							
Discounts and flotation expenses	7,700	Cr. 44	173	293	735	241	9,099
Revenue deficits	37,337	564	6	....	....	....	37,907
Total	45,037	520	179	293	735	241	47,006
GRAND TOTAL	693,850	43,620	46,958	48,093	51,751	53,418	937,690

(*a*) Excludes expenditure from Commonwealth loans under Commonwealth-State Housing Agreement.

The principal net expenditures from the General Loan Fund during the five years ended 30 June 1968 were those relating to Public buildings ($92·5 million), Water supplies, sewerage, drainage and irrigation ($62·4 million), Railways, tramways and omnibuses ($38·7 million), Harbours and rivers ($12·6 million), Housing ($11·8 million), Electricity supply ($9·20 million) and Development of agriculture ($2·52 million).

Of the total expenditure of $92·5 million on *Public buildings*, $37·5 million was spent on the construction of new schools, additions and improvements to existing schools, and technical education institutions, including The Western Australian Institute of Technology. Work on regional hospitals at Bunbury and Geraldton, a new hospital at Bentley, mental health buildings including a training centre at Guildford, and other new or improved hospitals in both metropolitan and country areas accounted for $30·5 million. Other expenditure included the cost of work on the construction of a new administrative office building to house Government Departments, the erection of a regional gaol at Albany and new police headquarters at Perth, new court houses and police stations, native welfare buildings, government offices at a number of centres, the construction of a new migrant hostel at Bull Creek, and additions to homes for the aged and infirm.

Expenditure on *Water supplies, sewerage and drainage* included the cost of work on the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply, duplication of the Serpentine trunk main, the Ord River irrigation project, developmental and improvement work in northern and south-west irrigation districts including the completion of Waroona Dam, sewerage works construction and extension of services in the metropolitan area and in country towns, and water supplies for towns and stock routes in northern and north-western areas. An account of progress in the field of water conservation and supply is given in Chapter VII, Part 2.

Expenditure under the heading of *Railways, tramways and omnibuses* included the cost of new rolling stock, maintenance and renewals of permanent way, the construction of a new railway bridge over the Swan River at North Fremantle, land resumptions for, and construction of, marshalling yards at Kewdale, construction of a railway between bauxite deposits at Jarrahdale and alumina works at Kwinana, and contribution to costs of railway standardisation. Advances were made to the Metropolitan (Perth) Passenger Transport Trust for the purchase of new omnibuses. Reference is made to the operations of the Trust in Chapter IX, Part 3.

The principal works under the heading of *Harbours and rivers* were those undertaken at the Port of Fremantle, including the completion of new headquarters for the Fremantle Port Authority, the building of a container terminal, the development of the outer harbour to serve the industrial complex at Kwinana, the reconstruction of quays, dredging, and the installation of new mechanical equipment. Among other works were the construction of breakwaters and land-backed berths at Bunbury and Esperance, harbour improvements and a new berth at Geraldton, improvements at ports on the north and north-west coasts including a new berth and improvements at Port Hedland, and the construction of a fishing-boat harbour at Fremantle.

The amounts shown under the heading of *Housing* consist mainly of additional capital provided to The State Housing Commission for the erection of houses, land acquisition and development, and assistance to home builders. The expenditure, which relates only to the General Loan Fund, does not, of course, include moneys applied to the Commission's purposes from Commonwealth loans under the Commonwealth-State Housing Agreement. Reference to the Agreement and to the work of The State Housing Commission will be found in Chapter V, Part 4.

Expenditure attributed to *Electricity supply* includes amounts spent by the State Electricity Commission on power stations at Muja on the Collie coalfield and at Kwinana, and the development of the South-West Power Scheme. The figures do not represent all of the Commission's expenditure as they refer only to the General Loan Fund and therefore exclude moneys available to the Commission from its own public loan raisings. The activities of the State Electricity Commission are described in Chapter VIII, Part 2.

Expenditure under the heading of *Development of agriculture* includes the cost of additions to the buildings and laboratories of the Department of Agriculture at South Perth, improvements to research stations operated by the Department and to the Agricultural College at Muresk, land regeneration at the Ord River, and the provision of a cotton ginnery at Kununurra.

Expenditure on the *Development of goldfields and mineral resources* relates to moneys spent on assistance to prospectors, loans to mine owners, drilling in connection with mineral exploration and miscellaneous works at various State Batteries. It also includes advances on account of the Wundowie Charcoal Iron and Steel Industry for expenditure on capital works.

The aggregate expenditure described as *Miscellaneous* amounted to $11·0 million, of which $1·10 million was used to finance advances by The Rural and Industries Bank of Western Australia to primary and secondary industries. A further sum of $2·39 million was spent on account of the University of Western Australia for new buildings and alterations to existing buildings. The remaining expenditure relates to such items as loans and grants to a number of public bodies, pine planting and forest regeneration, assistance to industry including the resumption of land for industrial purposes and services to industry, road works, and advances to the Western Australian Tourist Development Authority for improvement of tourist facilities.

The following table shows the amounts of loan raisings and redemptions by or on behalf of the State Government during the five-year period ended 30 June 1968.

LOAN RAISINGS AND REDEMPTIONS

($'000)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Raisings—					
By Commonwealth Government—					
Loans subscribed in—					
Australia	41,322	47,031	48,052	51,731	53,404
London	2,306	....	....	....	....
By State Government—					
Loans subscribed in—					
London	2,134	....	....	....	....
Total raisings	45,762	47,031	48,052	51,731	53,404
Redemptions—					
By National Debt Commission—					
Australian securities	6,425	6,053	6,598	7,130	7,403
London securities	341	1,009	1,049	1,059	1,139
New York securities	263	377	473	422	425
Canadian securities	24	17	37	33	33
Netherlands securities	....	....	....	....	36
Total redemptions	7,054	7,456	8,158	8,644	9,036
Excess of raisings over redemptions	38,709	39,575	39,894	43,087	44,368

Public Debt. Western Australia's gross public debt at 30 June 1968, was $793 million, compared with $587 million at 30 June 1963, representing an increase of $206 million during the five years. Total raisings in the financial years 1963-64 to 1967-68 amounted to $246 million and the value of securities repurchased and redeemed in Australia, London, New York, Canada and the Netherlands by the National Debt Commission was $40 million.

The following table presents a summary of public debt transactions in each year of the period between 30 June 1963 and 30 June 1968 and provides a reconciliation between public debt and the aggregate net loan expenditure to each of those dates as shown in the table on page 273.

NET LOAN EXPENDITURE AND PUBLIC DEBT
($'000)

Particulars	At 30 June—					
	1963	1964	1965	1966	1967	1968
Debits—						
Aggregate net loan expenditure	(a) 693,850	737,470	784,428	832,521	884,272	(a) 937,690
Inscribed stock issued under Agricultural Bank Act	3,132	3,132	3,132	3,132	3,132	3,132
The Rural and Industries Bank of Western Australia debenture stock (b)	....	2,134	2,134	2,134	2,134	2,134
Unexpended balance of General Loan Fund	....	5	78	38	18	4
Total debits	696,982	742,741	789,773	837,825	889,556	942,960
Credits—						
Aggregate redemptions	109,643	116,697	124,153	132,310	140,954	149,990
Over-expenditure from General Loan Fund	3	....	....	....	....	....
Total credits	109,646	116,697	124,153	132,310	140,954	149,990
Balance, Gross public debt	587,336	626,045	665,620	705,514	748,601	792,969
Amount of public debt maturing in—						
Australia	515,465	550,362	591,340	632,794	677,807	723,808
London	62,754	66,853	65,844	64,796	63,737	62,599
New York	7,530	7,267	6,890	6,417	5,582	5,156
Canada	662	638	621	584	551	517
Netherlands	539	539	539	539	539	503
Switzerland	385	385	385	385	385	385
Total, Gross public debt	587,336	626,045	665,620	705,514	748,601	792,969
Sinking Fund available for further debt redemption	485	442	473	267	216	408
Net public debt	586,851	625,603	665,147	705,248	748,386	792,562

(a) From table on page 273. (b) Representing stock issued in connection with the acquisition by the Government of the assets of The Midland Railway Company of Western Australia Limited.

The following table relating to Western Australia's gross public debt at 30 June 1968 shows the amount of loans payable classified according to country and rate of interest.

PUBLIC DEBT—LOANS PAYABLE : RATES OF INTEREST
($'000)

Rate of interest (per cent)	Amount payable at 30 June 1968 in—						Total
	Australia	London	New York	Canada	Netherlands	Switzerland	
1	6,286	....	....	....	....	....	6,286
2·5	....	8,200	....	....	....	....	8,200
2·75	....	6,071	....	....	....	....	6,071
3	....	8,610	....	....	....	....	8,610
3·25	....	28,142	....	....	....	....	28,142
3·75	....	....	563	....	....	....	563
4	1,279	....	....	....	....	....	1,279
4·25	40,640	....	....	....	....	....	40,640
4·4	3,944	....	....	....	....	....	3,944
4·5	147,586	....	111	....	....	385	148,082
4·6	2,346	....	....	....	....	....	2,346
4·625	5,904	....	....	....	....	....	5,904
4·75	43,100	....	565	....	....	....	43,664
4·8	20,476	....	....	....	....	....	20,476
5	278,985	....	795	....	503	....	280,283
5·25	148,195	....	1,088	....	....	....	149,283
5·375	25,067	....	....	....	....	....	25,067
5·5	....	7,545	2,036	....	....	....	9,581
5·75	....	....	....	517	....	....	517
6	....	3,320	....	....	....	....	3,320
Interest not payable	....	711	....	....	....	....	711
Total	723,808	62,599	5,156	517	503	385	792,969

The following table relating to Western Australia's gross public debt at 30 June 1968 shows the amount of loans payable classified according to country and year of maturity.

PUBLIC DEBT—LOANS PAYABLE : YEAR OF MATURITY
($'000)

Latest year of maturity	Amount payable at 30 June 1968 in—						Total
	Australia	London	New York	Canada	Netherlands	Switzerland	
1968	33,083	....	....	....	....	....	33,083
1969	66,267	11,590	563	....	....	....	78,420
1970	62,621	....	....	....	....	....	62,621
1971	31,315	6,071	111	....	....	....	37,497
1972	46,090	....	355	....	....	....	46,445
1973	30,762	....	565	....	....	....	31,327
1974	21,096	23,946	....	....	....	....	45,042
1975	47,353	9,850	....	....	....	....	57,203
1976	50,378	....	....	....	....	385	50,763
1977	17,381	1,215	....	....	....	....	18,596
1978	15,873	4,290	440	....	....	....	20,603
1979	19,673	....	....	....	....	....	19,673
1980	1,919	711	1,088	....	....	....	3,718
1981	25,353	....	606	517	503	....	26,979
1982	14,781	2,306	1,430	....	....	....	18,517
1983	6,286	2,619	....	....	....	....	8,905
1984	48,245	....	....	....	....	....	48,245
1985	56,548	....	....	....	....	....	56,548
1986	17,020	....	....	....	....	....	17,020
1987	37,006	....	....	....	....	....	37,006
1988	14,942	....	....	....	....	....	14,942
1989	10,646	....	....	....	....	....	10,646
1990	12,410	....	....	....	....	....	12,410
2001	17,800	....	....	....	....	....	17,800
2003	9,773	....	....	....	....	....	9,773
2004	9,186	....	....	....	....	....	9,186
Total	723,808	62,599	5,156	517	503	385	792,969

Reference is made on page 259 to the National Debt Commission and its functions in relation to the public debts of the States. Transactions of the National Debt Sinking Fund in respect of the public debt of Western Australia during the five-year period ended 30 June 1968 are shown in the following table.

SINKING FUND TRANSACTIONS
($'000)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Balance at beginning of year	485	442	473	267	216
Receipts—					
Contributions by State	5,853	6,452	6,909	7,379	7,848
Contributions by Commonwealth	1,519	1,616	1,726	1,844	1,986
Interest	15	....	14	7	17
Total receipts	7,386	8,067	8,649	9,230	9,851
Expenditure—					
Redemptions and repurchases in—					
Australia	6,425	6,053	6,598	7,130	7,403
London	383	1,125	1,162	1,191	1,283
New York	573	823	1,020	895	860
Canada	49	35	76	65	60
Netherlands	....	....	....	....	54
Total expenditure	7,429	8,036	8,856	9,281	9,659
Balance at end of year	442	473	267	216	408

Trust Funds

Trust funds are divided into three groups, governmental, private, and those which deal with moneys advanced by the Commonwealth Government for specific purposes. A detailed list of trust fund transactions is published quarterly in the *Statement of Receipts and Disbursements of Western Australia.* The following table contains a summary of the more important items selected from this list.

SUMMARY OF TRUST FUNDS—RECEIPTS AND EXPENDITURE
($'000)

Title of account	1966–67		1967–68		Balance of fund at 30 June 1968
	Receipts	Expenditure	Receipts	Expenditure	
Governmental trust funds—					
Agriculture Protection Board	449	389	560	397	272
Crown Law Advance	6,437	6,241	9,360	9,390	299
Forests Improvement and Reforestation	4,115	3,927	4,319	4,507	471
Hospital Buildings and Equipment	1,163	1,039	1,726	1,195	691
Hospital Fund Contributions	26,729	26,729	31,511	31,511	....
Housing—					
Government Employees' Housing Authority	787	979	1,070	1,355	6
Kwinana Housing	258	302	276	307	Dr. 71
State Housing Commission	24,636	23,430	27,923	23,772	8,952
Infant Welfare Centres	323	323	336	336	....
Insurance—					
Government Fire and Marine Insurance	1,405	1,546	1,032	1,060	47
Government Workers' Compensation	1,114	1,243	1,195	1,183	242
Railway Accident and Fire Insurance	224	154	214	166	465
State Insurance	10,018	9,905	10,353	10,352	122
Library Board of Western Australia	621	613	720	728	1
Metropolitan Region Improvement	1,281	1,351	2,171	2,267	Dr. 81
Milk Board	260	318	263	253	36
Milk Board Investment Reserve	72	106	95	99	150
National Parks Board	268	272	303	306	3
Native Welfare Administration	2,393	2,443	2,748	2,748	....
Noxious Weeds	543	499	637	529	201
Plant Hire	2,014	1,744	1,700	1,674	467
Public Debt Sinking Fund	9,230	9,281	9,851	9,659	408
Railways Rolling Stock Replacement	1,034	2,000	1,883	1,995	822
Roads—					
Central Road Fund	10,955	10,955	11,937	11,937	....
Main Roads	27,155	27,518	29,012	34,330	2,974
Main Roads—New Buildings	....	....	3,250	158	3,092
Metropolitan Traffic	5,833	5,773	6,261	6,321	....
Mitchell Freeway	....	....	3,107	1,359	3,000
Roads Maintenance Trust	2,557	2,635	2,899	3,126	87
Rural and Industries Bank	2,261	4,650	1,755	1,887	33
State Electricity Commission Loans—Sinking Fund	335	229	422	99	1,174
Tourist Fund	722	468	562	615	342
Transport Commission	1,737	1,602	1,865	1,915	309
Vermin Act	997	912	1,068	1,029	565
Western Australian Museum	212	209	233	231	25
Other	5,448	5,626	8,333	5,478	8,185
Total	153,585	155,409	180,952	174,272	33,290
Funds financed from Commonwealth advances—					
Colleges of Advanced Education—Building Projects	457	493	72	92	8
Schools—Science Buildings and Equipment	1,202	1,074	941	1,061	109
Housing—					
Commonwealth-State Housing Agreement	18,982	16,169	21,084	19,524	6,909
Home Builders	4,050	4,123	4,419	4,452	65
War Service Homes	4,700	4,693	3,841	3,838	11
Petroleum Products Subsidy	2,524	2,451	2,855	2,837	210
Pharmaceutical Benefits	1,522	1,522	1,534	1,534	....
Roads—					
Beef Cattle Roads	1,760	1,760	1,400	1,400	....
Commonwealth Aid Roads Acts	31,937	33,203	36,887	37,183	271
Scholarship Scheme	893	810	147	207	23
South-West Region Water Supplies	1,250	1,250	1,810	1,810	....
Technical Training—Buildings and Equipment	552	733	1,674	1,592	(a)
Water Resources	235	235	260	260	....
Other	2,639	2,486	1,358	929	1,243
Total	72,704	71,003	78,281	76,721	8,849
Private trust funds—					
Charitable Institutions	286	265	269	268	135
Clerk of Courts	4,500	4,466	5,070	5,078	157
Coal Mine Workers' Pensions	534	508	559	595	2
Coal Mine Workers' Pensions Investment Reserve	120	18	233	39	2,297
Country High School Hostels Authority	371	412	468	219	240
Public Trustee Common Fund	7,002	6,843	8,106	7,993	339
Superannuation Fund	8,577	9,240	9,998	9,440	305
Superannuation Investment Reserve	3,932	78	3,290	200	32,471
Workers' Compensation in Suspense	402	346	402	394	74
Other	2,641	2,526	3,267	2,885	2,956
Total	28,367	24,702	31,662	27,111	38,976
GRAND TOTAL	254,656	251,114	290,894	278,104	81,115

(a) Less than $500.

LOCAL GOVERNMENT FINANCE

The financial powers of local government authorities in Western Australia are derived principally from the *Local Government Act, 1960-1969*, the main provisions of which are outlined in Chapter III—*Constitution and Government*. Among other statutes affecting local government finance are the Traffic Act, the Health Act, the Water Boards Act, the Vermin Act and the Fire Brigades Act.

General Revenue

SUMMARY OF LOCAL GOVERNMENT REVENUE (*a*)
($'000)

Source of revenue	1963–64	1964–65	1965–66	1966–67	1967–68
Taxation—					
Rates—					
Municipal	11,018	12,019	13,436	14,982	16,819
Water Board	148	163	198	226	240
Vermin Board	23	34	44	57	69
Licences and fees—					
Dog	32	33	35	33	41
Building	127	141	133	167	197
Other (*b*)	52	48	62	77	110
Total (*b*)	11,400	12,438	13,908	15,542	17,475
Public works and services—					
Income from property and plant—					
Parks, gardens and recreational facilities	697	720	877	1,068	1,135
Halls and other buildings	621	656	645	695	802
Vehicles and plant	654	674	805	1,004	1,153
Land sales	1,672	2,448	1,060	998	1,565
Other property		721	351	786	1,214
Contributions for road construction, etc.	1,550	1,608	1,997	3,371	3,197
Sanitation charges (including garbage services)	1,063	1,114	1,203	1,344	1,519
Sundry works and services—					
Municipalities	638	1,023	986	1,190	1,142
Water Boards	35	36	41	50	89
Vermin Boards	8	7	10	17	13
Total	6,938	9,006	7,975	10,523	11,829
Government grants and reimbursements—					
Roads—					
Central Road Trust Fund			2,630	3,292	4,813
Main Roads Trust Account	5,716	(*c*) 9,109	3,383	3,696	3,998
Metropolitan Traffic Trust Account			971	861	865
Other			230	138	348
Recreational facilities (*d*)	150	115	198	260	289
Electricity supply	13	37	15	23	21
Water Boards	1	1	1	1	1
Vermin destruction bonuses—					
Municipalities	10	9	7	6	8
Vermin Boards	6	7	5	11	9
Infant health	5	24	13	11	8
Other	63	70	94	100	92
Total	5,964	9,372	7,547	8,399	10,452
Vehicle licences and fees (*e*)	3,034	3,254	3,914	4,432	4,602
Electricity undertakings	1,925	1,938	2,271	2,621	3,068
Other revenue—					
Fines and penalties—					
Traffic	159	180	217	264	340
Other	11	9	17	24	20
Interest	929	335	367	333	366
Other		743	892	889	826
Total	1,099	1,268	1,493	1,509	1,552
GRAND TOTAL (*f*)	30,359	37,276	37,107	43,027	48,979

(*a*) Loan receipts are excluded; for particulars see page 282. (*b*) Excludes revenue from vehicle licences (see 'Vehicle licences and fees' below) and sanitary and garbage fees (see 'Sanitation charges (including garbage services)' below). (*c*) Includes special grants paid under the *Traffic Act Amendment Act (No. 2), 1964*. (*d*) Includes grants from Western Australian Tourist Development Authority. (*e*) Fees collected by local government authorities outside the Metropolitan Traffic Area. (*f*) Figures exclude amounts appropriated to general revenue as profits from electricity undertakings.

TAXATION. As may be seen from the previous table, revenue from taxation other than motor vehicle registration fees accounts for about one-third of the total receipts of local

authorities and is derived almost entirely from rates. During the five-year period ended 30 June 1968, the total revenue from municipal rates was $68·3 million, equivalent to 34·7 per cent of revenue from all sources.

PUBLIC WORKS AND SERVICES. Revenue from ' Public works and services ' amounted to $46·3 million, or 23·5 per cent of all revenue during the five years to 30 June 1968. Income from property and plant, which includes rents and hire charges for buildings, plant and recreational facilities as well as sales of land, buildings, vehicles and plant, was $23·0 million. Next in importance were receipts amounting to $11·7 million from construction of private roads, including driveways to premises, and $6·24 million from sanitation charges, including garbage services.

GOVERNMENT GRANTS AND REIMBURSEMENTS. Grants for road works and recoups of road construction costs constitute the main item in this category, and amounted to $40·1 million in the five years to 30 June 1968, equivalent to 20·4 per cent of total revenue. Local government moneys for road works are provided from State Government funds. Reference to the operations of these funds will be found in the section *Finance for Roads* in Chapter IX, Part 3. Revenue in the form of reimbursements consists of recoups of expenditure made to the local government authorities by the State Government for expenditure incurred on its behalf in road construction and maintenance, which is undertaken principally for the Main Roads Department but also for other State authorities as, for example, The State Housing Commission.

MOTOR VEHICLE REGISTRATION FEES. In Western Australia, there is no single authority responsible for the licensing of motor vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area and the Kimberley Traffic Area (see the section *Vehicle Registration, Licences and Traffic Control* in Chapter IX, Part 3). In other parts of the State each local government authority licenses vehicles in its own district, but the *Traffic Act Amendment Act (No. 2), 1969* enables such powers to be transferred, subject to the approval of the Minister, to the Commissioner of Police if a local government authority, by resolution of its Council, so requires. During the five-year period ended 30 June 1968 revenue from vehicle licences and fees collected by local government authorities outside the Metropolitan Traffic Area amounted to $19·2 million. Moneys so collected are required by the *Main Roads Act Amendment Act, 1969* to be paid to the Mains Roads Trust Account, from which grants are made to the local government authorities under a scheme to which reference is made in the section *Finance for Roads* in Chapter IX, Part 3.

General Expenditure

GENERAL ADMINISTRATION. Expenditure on administration during the five-year period ended 30 June 1968 amounted to $15·7 million, equivalent to 8·04 per cent of the total expenditure of local government authorities.

DEBT SERVICES. Expenditure on debt services includes debt redemption charges, interest payable under hire purchase agreements and interest charges on loans and overdrafts. The total cost of these services (excluding those relating to electricity undertakings) was $29·5 million in the five years to 30 June 1968.

PUBLIC WORKS AND SERVICES. Expenditure under the heading ' Public works and services ' during the five-year period ended 30 June 1968 amounted to $133 million, or 68·2 per cent of the total. ' Roads, paths and bridges ', which constitutes the principal item, accounted for $61·5 million. It includes construction and maintenance costs as well as moneys spent on other road work such as the cleaning and watering of thoroughfares, the provision of street nameplates and seats, street tree planting and street lighting. Other costs attributed to ' Public works and services ' are those connected with health, sanitation and garbage services, capital and maintenance expenditure on property and on vehicles and other plant. Some of the items included under the heading ' Public works and services ' are financed only partly from revenue, the remaining expenditure being from loan funds (see table on page 282).

GRANTS AND DONATIONS. Many of the local authorities make annual contributions as required by the Fire Brigades Act towards the maintenance of fire brigades, while grants are also made in some cases to hospitals and ambulances, to infant health clinics where they are not under the direct control of the local authority concerned, to other local organisations and to the Western Australian State Symphony Orchestra.

SUMMARY OF LOCAL GOVERNMENT EXPENDITURE (*a*)
($'000)

Nature of expenditure	1963-64	1964-65	1965-66	1966-67	1967-68
General administration	2,538	2,740	3,131	3,403	3,847
Debt services (*b*)—					
Interest—					
On loans—					
Municipalities	1,853	2,021	2,243	2,446	2,761
Water Boards	28	28	30	35	35
On overdraft	13	17	19	29	37
Redemption—					
Municipalities	2,794	3,094	3,524	3,882	4,389
Water Boards	40	44	48	52	57
Total (*b*)	4,728	5,203	5,864	6,443	7,279
Public works and services—					
Roads, paths and bridges—					
Construction and maintenance	8,086	9,762	11,044	13,208	14,054
Other road work	582	651	519	501	524
Street lighting	441	477	509	547	595
Property and plant—					
Parks, gardens and recreational facilities	2,585	2,575	2,870	3,580	4,049
Halls and other buildings	1,600	1,763	2,578	1,878	2,448
Vehicles and plant	1,876	2,410	2,358	2,674	3,381
Other property	1,591	1,023	1,005	1,849	1,227
Other public works and services—					
Sanitary and garbage services	1,331	1,366	1,461	1,648	1,865
Other health services	542	639	617	644	773
Sundry works and services—					
Municipalities	1,730	2,169	2,697	3,167	4,192
Water Boards	125	153	156	182	221
Vermin Boards	41	43	49	104	83
Total	20,530	23,032	25,863	29,982	33,412
Grants and donations—					
Fire brigades	296	300	335	364	390
Hospitals and ambulances	21	21	22	26	36
Other	122	161	166	195	224
Total	440	482	522	585	651
Electricity undertakings (including debt services) (*c*)	1,746	1,873	2,273	2,623	2,981
Other expenditure	637	577	520	525	417
GRAND TOTAL (*c*)	30,618	33,907	38,174	43,562	48,587

(*a*) Loan expenditure is excluded; for particulars see page 282. (*b*) Excludes debt services of electricity undertakings.
(*c*) Figures exclude amounts appropriated to general revenue as profits from electricity undertakings.

Loan Transactions

Under the provisions of the local government legislation, local government authorities are constituted as corporate bodies and are authorised to raise loans for works and undertakings and for the liquidation of existing loan debts. The conditions imposed by the *Local Government Act, 1960-1969* in relation to loan raisings, the levying of loan rates, the expenditure of loan moneys and the repayment of loans are summarised on pages 122-3 under the heading *Financial Provisions.*

Loans are raised mainly from banks, insurance companies and superannuation funds. The State Government exercises a measure of supervision over the loan transactions of local government authorities and, where a loan is repayable in full at maturity, maintains the necessary sinking fund at the Treasury.

The following table gives a dissection of the loan receipts and expenditure of local government authorities in each financial year during the period from 1963-64 to 1967-68.

LOCAL GOVERNMENT LOAN RECEIPTS AND EXPENDITURE
($'000)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
RECEIPTS					
Municipalities—					
Ordinary services	5,994	6,701	6,942	7,871	10,193
Health services	193	176	81	61	77
Electricity undertakings	713	907	602	816	982
Water Boards	80	78	139	83	60
Total	6,980	7,862	7,764	8,831	11,313
EXPENDITURE					
Municipalities—					
Public works and services—					
Roads, paths and bridges	1,774	1,951	1,910	2,097	2,222
Parks, gardens and recreational facilities	1,051	976	1,742	1,977	1,626
Halls and other buildings	1,670	1,598	2,071	2,425	3,036
Vehicles and plant	917	1,119	1,127	1,119	1,469
Electricity undertakings	509	862	783	667	1,087
Other works and services	168	261	296	266	268
Redemptions	8	7	2	....	40
Other loan charges, transfers, etc.	428	280	142	27	41
Water Boards	109	59	117	98	99
Total	6,634	7,113	8,190	8,676	9,889

The following table shows the aggregate local government loan debt outstanding at 30 June of each year during the period from 1964 to 1968.

LOCAL GOVERNMENT LOAN DEBT
($'000)

Nature of debt	At 30 June—				
	1964	1965	1966	1967	1968
Loan debt outstanding	40,293	44,723	48,661	53,386	59,275
Sinking fund balances	127	140	151	149	109
Net loan debt	40,166	44,584	48,511	53,237	59,166
Net loan debt on account of—					
Ordinary services	35,733	39,327	42,864	46,965	52,962
Health services	1,432	1,509	1,500	1,453	1,407
Electricity undertakings	2,508	3,222	3,536	4,140	4,106
Water Boards	492	525	610	677	691
Total, Net loan debt	40,166	44,584	48,511	53,237	59,166

PENSION AND SUPERANNUATION SCHEMES

The Western Australian Government and many local government and semi-government authorities have established pension and superannuation schemes for eligible employees and their dependants, to which both employers and employees contribute. These schemes are operated either through separately constituted funds or through life insurance offices.

The *Superannuation and Family Benefits Act, 1938-1968* applies to employees of State Government Departments, semi-government authorities and other government instrumentalities. The Act establishes The Superannuation Fund and a Provident Account under the management of a Superannuation Board. Contributions made by the State are paid from the Consolidated Revenue Fund.

The *Superannuation, Sick, Death, Insurance, Guarantee and Endowment (Local Governing Bodies' Employees) Funds Act, 1947-1950* enables local government authorities to establish funds to provide benefits for their employees. Contributions made by an authority are paid from its ordinary revenue.

GOVERNMENT PENSION AND SUPERANNUATION SCHEMES (*a*) OPERATED THROUGH SEPARATELY CONSTITUTED FUNDS

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
	$'000	$'000	$'000	$'000	$'000
Income—					
Contributions—					
Employees	2,134	2,436	2,640	2,887	3,218
Employers	2,630	2,816	3,134	3,277	3,723
Interest, dividends and rents	1,100	1,278	1,522	1,494	2,040
Other	94	99	108	175	206
Total	5,958	6,629	7,404	7,833	9,187
Expenditure—					
Pensions	2,890	3,133	3,330	3,573	4,218
Lump sum payments (*b*)	398	432	645	737	801
Other	27	34	33	50	57
Total	3,316	3,599	4,007	4,360	5,076
Assets at end of year—					
Cash—					
Deposits with Treasury	188	300	411	....	305
Other deposits and cash	324	227	384	418	382
Commonwealth Government securities	203	148	127	101	103
Local and semi-governmental securities	22,208	24,922	26,961	28,719	31,376
Mortgages—					
Housing	....	....	36	137	301
Other	17	116	122	121	264
Loans to building societies	80	114	145	234	324
Company shares	....	21	122	256	291
Company debentures and notes	....	28	234	401	491
Other assets	389	701	1,634	3,671	4,180
Total	23,409	26,579	30,175	34,059	38,016
less sundry creditors, etc.	51	69	115	399	176
Accumulated funds	23,357	26,509	30,060	33,660	37,841
	No.	No.	No.	No.	No.
Contributors at end of year	15,160	16,096	16,954	17,835	18,804
Pensioners at end of year—					
Ex-employees	3,105	3,188	3,294	3,357	3,421
Widows	1,987	2,040	2,116	2,184	2,259
Children	180	207	210	208	200

(*a*) Schemes established by State Government, local government and semi-government authorities, and the University of Western Australia. (*b*) On retirement, death, resignation or dismissal. Includes refunds of contributions.

GOVERNMENT PENSION AND SUPERANNUATION SCHEMES (*a*) OPERATED THROUGH LIFE INSURANCE OFFICES

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
	$'000	$'000	$'000	$'000	$'000
Income—					
Contributions—					
Employees	297	404	377	442	510
Employers	418	604	526	612	710
Surrenders	54	70	87	102	67
Death claims and matured policies	82	68	95	109	184
Other	19	12	5	8	10
Total	870	1,159	1,091	1,273	1,480
Expenditure—					
Premiums paid to insurance companies	757	940	831	1,029	1,191
Benefits to contributors—					
On retirement or death	79	69	96	96	189
On resignation or dismissal	46	53	73	86	54
Other	35	67	76	29	35
Total	917	1,129	1,076	1,239	1,469
	No.	No.	No.	No.	No.
Contributors at end of year	2,648	2,734	2,746	2,921	3,041

(*a*) Schemes established by local government and semi-government authorities and the University of Western Australia.

Parliamentary Superannuation Fund. The *Parliamentary Superannuation Act, 1948-1968* establishes a Parliamentary Superannuation Fund to provide superannuation, pensions and other benefits for former Members of the Parliament of Western Australia and their dependants. The Fund is financed from contributions paid by members and moneys appropriated from the Consolidated Revenue Fund.

PARLIAMENTARY SUPERANNUATION FUND

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Income—	$'000	$'000	$'000	$'000	$'000
Contributions—					
Members	33	42	51	50	53
Government	33	42	50	50	50
Interest	15	18	21	31	24
Total	82	101	122	131	126
Expenditure—					
Pensions	38	45	53	55	77
Total	38	45	53	55	77
Assets at end of year—					
Cash deposits with Treasury	3	4	2	3	7
Commonwealth Government securities	45	45	45	45	45
Local and semi-governmental securities	257	313	383	451	501
Other	4	4	6	12	7
Accumulated funds	310	367	436	512	561
	No.	No.	No.	No.	No.
Contributors at end of year	80	82	80	79	81
Pensioners at end of year—					
Ex-members	20	19	19	17	29
Widows	24	24	27	26	25

Coal Mine Workers' Pensions Fund. The *Coal Mine Workers (Pensions) Act, 1943-1969* establishes a Coal Mine Workers' Pensions Fund to provide pensions and other benefits for persons formerly engaged in coal mining and for their dependants. The Fund is financed from contributions paid by employees and employers and moneys appropriated from the Consolidated Revenue Fund.

COAL MINE WORKERS' PENSIONS FUND

Particulars	1963-64	1964-65	1965-66	1966-67	1967-68
Income—	$'000	$'000	$'000	$'000	$'000
Contributions—					
Employees	35	44	47	56	54
Employers	132	165	164	191	183
Government	60	60	60	60	80
Interest, dividends and rents	91	96	104	110	119
Total	318	366	376	418	436
Expenditure—					
Pensions	204	254	266	274	264
Lump sum payments—					
On retirement or death	2	....	1	1	4
On resignation or dismissal	....	4	6	5	4
Other	5	6	6	7	6
Total	211	263	279	287	277
Assets at end of year—					
Cash deposits with Treasury	16	15	11	38	2
Commonwealth Government securities	118	118	118	118	118
Local and semi-governmental securities	1,681	1,784	1,882	1,984	2,179
Other	23	24	25	28	30
Total	1,838	1,940	2,037	2,169	2,328
less sundry creditors, etc.	4	4	3	4	5
Accumulated funds	1,834	1,937	2,034	2,165	2,323
	No.	No.	No.	No.	No.
Contributors at end of year	770	756	732	697	646
Pensioners at end of year—					
Ex-employees	250	258	267	266	275
Widows and children	140	144	192	189	182

Chapter VI—continued

Part 2—Private Finance

CURRENCY

The power to legislate with respect to currency, coinage and legal tender and the issue of paper money is vested by the Constitution in the Commonwealth Parliament. This power was originally exercised by the Commonwealth Government under the Coinage Act of 1909 and the Australian Notes Act of 1910. These Acts, and later amendments, were superseded by the *Reserve Bank Act* 1965 and the *Currency Act* 1965, when a decimal currency system was adopted in Australia with effect from 14 February 1966.

Prior to the introduction of decimal currency the Australian monetary system was based on that used in the United Kingdom and therefore had as its unit the pound (£) divided into twenty shillings (s.) each of twelve pence (d.). The *Currency Act* 1965, which replaced the *Coinage Act* 1909-1947, provides for the adoption of a monetary unit known as the 'dollar', equivalent in value to ten shillings in the currency previously in use. The dollar is divided into 100 minor units, or 'cents'. Coins are in the denominations of 50 cents, 20 cents, 10 cents, 5 cents, 2 cents and 1 cent. The *Reserve Bank Act* 1965 authorises the issue of notes in the denominations of one dollar, 2, 5, 10, 20 and 50 dollars, or in any other denomination that the Treasurer determines. Notes currently issued are in the denominations of 1, 2, 5, 10 and 20 dollars.

Australian notes are legal tender in Australia to any amount, coins of the denominations of 5, 10, 20 or 50 cents for amounts not exceeding five dollars, and two-cent and one-cent coins for amounts up to and including 20 cents.

Rates of Exchange

At 30 June 1969 the par value of the Australian dollar ($A1) as agreed with the International Monetary Fund was, in terms of sterling currency, nine shillings and fourpence (£stg 0·47), and $US 1.12 in terms of American currency.

The following table shows the average telegraphic transfer selling rates of exchange for Sydney (New South Wales) on a selection of overseas countries. The figures appearing in the table, which are averages of daily quotations, are based generally on rates quoted by the Commonwealth Trading Bank of Australia.

OVERSEAS EXCHANGE RATES—AVERAGE TELEGRAPHIC TRANSFER SELLING RATES SYDNEY ON OVERSEAS COUNTRIES: JUNE 1969

Country	Basis of quotation	Australian currency equivalent	Country	Basis of quotation	Australian currency equivalent
Belgium	Francs to $A1	55·55	Netherlands	Guilders to $A1	4·03
Canada	Dollars to $A1	1·20	New Zealand	$A to $NZ1	1·0020
Ceylon	Rupees to $A1	6·59	Norway	Kroner to $A1	7·87
China (mainland) (*a*)	New Yuan to $A1	2·72	Pakistan	Rupees to $A1	5·29
Denmark	Kroner to $A1	8·32	Singapore	Dollars to $A1	3·38
France	Francs to $A1	5·50	South Africa	Rands to $A1	0·795
Germany, Federal Republic of	Deutsche Marks to $A1	4·42	Sweden	Kronor to $A1	5·71
Hong Kong	Dollars to $A1	6·75	Switzerland	Francs to $A1	4·77
India	Rupees to $A1	8·33	Union of Soviet Socialist Republics (*a*)	Roubles to $A1	1·004
Italy	Lire to $A1	692·00	United Kingdom	$A to £stg1	2·1514
Japan	Yen to $A1	396·20	United States of America	Dollars to $A1	1·11

(*a*) Rate of exchange used by the Department of Customs and Excise in converting import values to Australian currency for the purpose of calculating customs duty.

BANKING

The banking system in Western Australia comprises the Commonwealth banking institutions, The Rural and Industries Bank of Western Australia and the private trading banks.

Commonwealth Banking Institutions

Prior to the operation of the Reserve Bank Act and the Commonwealth Banks Act, passed by the Commonwealth Parliament in 1959, the Commonwealth banking institutions were the Commonwealth Bank, the Commonwealth Trading Bank and the Commonwealth Savings Bank. The Commonwealth Bank, in addition to performing the functions of a central bank, controlled the Australian note issue through a Note Issue Department and also provided special banking facilities through the Rural Credits Department, the Mortgage Bank Department and the Industrial Finance Department. The policy of the Banks was determined by a Commonwealth Bank Board.

The *Reserve Bank Act* 1959 repealed the Commonwealth Bank Acts, the first of which was passed in 1911, and established the Reserve Bank of Australia under the control of a Reserve Bank Board. The Reserve Bank was constituted as the central bank and took over the Note Issue Department and the Rural Credits Department of the former Commonwealth Bank. The function of the Rural Credits Department is to make available to statutory authorities or co-operative associations of primary producers advances to assist the marketing or processing of primary products.

The *Commonwealth Banks Act* 1959 constituted the Commonwealth Banking Corporation, which came into being on 14 January 1960 as the authority responsible for the operations of the Trading Bank, the Savings Bank and a new Development Bank. The Development Bank was formed basically from the Mortgage Bank Department and the Industrial Finance Department of the Commonwealth Bank, to provide finance and advice to persons to assist them in primary production or in the establishment or development of industrial undertakings, particularly small enterprises.

The Rural and Industries Bank of Western Australia

The Rural and Industries Bank of Western Australia was established by the State Government under the Rural and Industries Bank Act of 1944 to replace the former Agricultural Bank of Western Australia. The Bank consists of a Rural Department and a Government Agency Department, and management is vested in five Commissioners. The Rural Department provides general banking services and, since 1956, has also conducted savings bank business through a Savings Bank Division.

Trading Banks

The nine trading banks conducting business in Western Australia comprise the Commonwealth Trading Bank of Australia, The Rural and Industries Bank of Western Australia (Rural Department) and seven private trading banks.

The private banks, each of which has its head office either in London or in another State, are the Australia and New Zealand Bank Limited, The Bank of Adelaide, the Bank of New South Wales, The Commercial Bank of Australia Limited, The Commercial Banking Company of Sydney Limited, The English, Scottish and Australian Bank, Limited and The National Bank of Australasia Limited. The operations of trading banks are governed by the *Banking Act* 1959-1967 (Commonwealth) which places them under a degree of control by the central bank, the Reserve Bank of Australia.

The following table shows the averages of total amounts on deposit with the trading banks and of their outstanding advances during each of the years 1964-65 to 1968-69. The figures relate to Western Australian business only and represent the annual average

of amounts as at the close of business each Wednesday. The information is prepared from returns furnished under the requirements of the *Banking Act* 1959-1967 by all trading banks except The Rural and Industries Bank of Western Australia, which supplies information by special arrangement.

TRADING BANKS—AVERAGES OF DEPOSITORS' BALANCES AND BANK ADVANCES
($'000)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Depositors' balances—					
Not bearing interest—					
Australian Governments....	1,356	1,734	1,673	1,764	1,728
Other	159,486	174,565	202,679	229,146	270,481
Bearing interest—					
Australian Governments....	1,586	3,101	5,315	9,448	4,364
Other—Current	12,686	13,875	15,466	16,849	23,042
Fixed	97,316	117,160	130,769	141,632	162,943
Total	272,430	310,432	355,899	398,837	462,559
Loans, advances and bills discounted (*a*)	186,000	195,190	212,023	252,627	280,147
Ratio of loans, advances, etc. to total balances (per cent)	68·3	62·9	59·6	63·3	60·6

(*a*) Excludes loans to authorised dealers in the short-term money market.

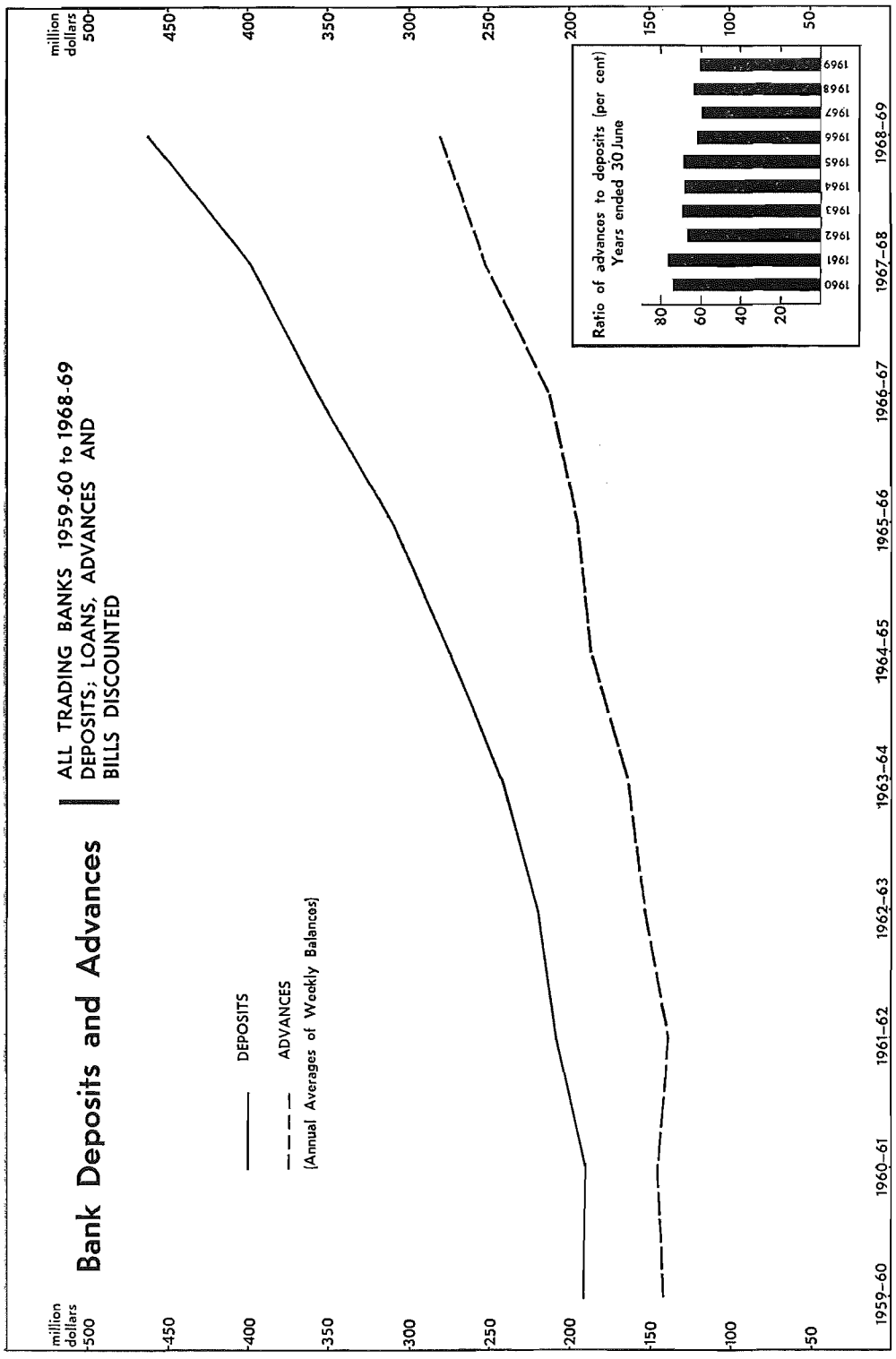
In July 1969 the outstanding advances of the trading banks, excluding The Rural and Industries Bank of Western Australia, amounted in total to $248·0 million. Business advances represented $193·8 million, personal advances $49·2 million, advances to non-profit organisations $4·3 million, and to public authorities other than the Commonwealth and State Governments $0·6 million. Business advances were mainly for rural industry ($77·7 million), for retail and wholesale trade ($44·5 million) and for manufacturing ($20·4 million). Of the personal advances, loans for the building or purchasing of homes accounted for $20·3 million.

In the following table, which relates to Western Australian business only, the average amount on deposit with each trading bank and the average of its outstanding advances during the month of June 1969 are shown, together with the number of branches and agencies of each bank at 30 June 1969.

TRADING BANKS—BRANCHES, AGENCIES, DEPOSITS AND ADVANCES: JUNE 1969

Bank	Number of branches (*a*)	Number of agencies (*a*)	Depositors' balances (*b*)			Loans, advances, and bills discounted (*b*) (*c*)
			Not bearing interest	Bearing interest	Total	
Commonwealth Trading Bank of Australia	67	29	46,682	33,864	80,545	44,411
The Rural and Industries Bank of Western Australia (Rural Department)	56	24	33,572	29,247	62,819	45,704
Private trading banks—						
Australia and New Zealand Bank Limited	46	25	37,326	24,361	61,687	27,245
The Bank of Adelaide	2	2	2,592	1,972	4,564	2,243
Bank of New South Wales	101	31	77,811	64,825	142,636	76,606
The Commercial Bank of Australia Limited	37	19	19,038	14,384	33,422	18,673
The Commercial Banking Company of Sydney Limited	4	....	2,537	1,658	4,195	2,797
The English, Scottish and Australian Bank, Limited	30	....	15,709	8,685	24,394	18,910
The National Bank of Australasia Limited	76	37	47,022	33,071	80,092	49,321
Total, Private trading banks	296	114	202,034	148,954	350,988	195,795
TOTAL, ALL TRADING BANKS	419	167	282,288	212,065	494,352	285,909

(*a*) At 30 June. (*b*) Averages based on amounts at close of business each Wednesday. (*c*) Excludes loans to authorised dealers in the short-term money market.


Bank Deposits and Advances
ALL TRADING BANKS 1959-60 to 1968-69
DEPOSITS; LOANS, ADVANCES AND BILLS DISCOUNTED
DEPOSITS
ADVANCES
(Annual Averages of Weekly Balances)
million dollars
500
450
400
350
300
250
200
150
100
50
1959-60
1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
1967-68
1968-69
Ratio of advances to deposits (per cent)
Years ended 30 June
80
60
40
20
1960
1961
1962
1963
1964
1965
1966
1967
1968
1969

The following table contains particulars of the average weekly debits to customers' accounts in each year from 1964-65 to 1968-69 and in each quarter of those years. The figures represent the total of all cheques drawn by customers of all trading banks and, in addition, the Rural Credits Department of the Reserve Bank of Australia and the Commonwealth Development Bank of Australia. Debits to Commonwealth and State Government accounts at city branches are excluded as they are subject to abnormal influences. The figures are derived by averaging the debits made during weeks ended on Wednesdays during the several periods shown.

TRADING BANKS—AVERAGE WEEKLY DEBITS TO CUSTOMERS' ACCOUNTS (*a*)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
	WEEKLY AVERAGE ($ million)				
Average for quarter ended—					
September	93·3	107·7	123·4	146·5	182·6
December	108·6	124·1	138·8	168·8	210·2
March	110·1	130·3	144·7	177·8	221·6
June	114·4	128·4	*147·5	183·2	221·8
Average for year	106·3	*122·4	138·6	169·1	209·0
	PER HEAD OF MEAN POPULATION (dollars)				
Average for quarter ended—					
September	115·1	130·1	145·0	166·5	199·8
December	133·2	148·7	161·7	190·1	227·4
March	134·3	154·9	167·0	198·3	237·0
June	138·9	151·8	169·0	202·4	235·4
Average for year	130·1	*146·2	160·8	189·5	225·0

(*a*) Excludes debits to Commonwealth and State Government accounts at city branches; see letterpress immediately preceding table. * Revised.

Bank Charges. In October 1962 the trading banks discontinued the interstate exchange rates previously charged and instituted a system of charges on current accounts. The charges, comprising three separate elements, are calculated quarterly and debited as one composite item. In addition to a basic maintenance fee of 75c per quarter (65c where there are not more than twenty ledger entries), there is a ledger activity fee increasing with the number of transactions each quarter, and a collection fee on cheques deposited in excess of twenty per quarter. Rebates are allowable on ledger activity fees where credit balances are maintained at the level of $1,000 or more throughout the quarterly period.

Savings Banks

Savings bank facilities in Western Australia are provided by the Commonwealth Savings Bank of Australia, which commenced business in Western Australia in 1913; the Australia and New Zealand Savings Bank Limited, the Bank of New South Wales Savings Bank Limited, the C.B.C. Savings Bank Limited and The Rural and Industries Bank of Western Australia (Savings Bank Division), all of which were established in 1956; the E.S. & A. Savings Bank Limited, established in 1961; and The Bank of Adelaide Savings Bank Limited, The National Bank Savings Bank Limited, and The Commercial Savings Bank of Australia Limited, all of which commenced business in 1962.

Individual depositors may not operate on their savings bank accounts by cheque, but cheque accounts are generally available to non-profit organisations such as friendly, co-operative and charitable societies. Interest is paid on deposits with savings banks

and no charge is made for the keeping of accounts. A school savings bank service is provided and its operations, except for the number of accounts open at the end of each year, are included in the figures shown in the following table.

SAVINGS BANK TRANSACTIONS

Particulars		1964–65	1965–66	1966–67	1967–68	1968–69
Deposits (*a*)	$'000	345,734	397,581	467,401	557,289	663,653
Withdrawals (*a*)	$'000	331,250	375,075	439,255	525,587	637,254
Excess of deposits over withdrawals	$'000	14,484	22,506	28,146	31,703	26,399
Interest added to accounts	$'000	7,404	8,711	9,790	11,093	12,983
Accounts open at end of year (*b*)	No.	786,340	848,562	905,349	970,120	1,036,180
Depositors' balances at end of year—						
Total	$'000	261,654	292,871	330,807	373,602	412,984
Average per operative account	$	332·9	345·4	365·5	385·1	398·6
Average per head of population	$	317·0	345·3	377·5	410·8	436·4

(*a*) Includes inter-branch transfers but excludes transfers from and to other States. (*b*) Excluding inoperative accounts (*i.e.* accounts of less than $2 which have not been operated on for more than two years).

Bank Interest Rates

The following table shows the rates of interest paid on fixed deposits and the maximum rates charged on overdrafts by the trading banks from 1 July 1964 to 30 June 1969.

TRADING BANKS—RATES OF INTEREST

Date (*a*) or year	Interest on fixed deposits				Interest on overdrafts (maximum rate)
	Thirty days but less than three months (*b*)	Three months but less than twelve months	Twelve months to eighteen months (*c*)	Over eighteen months to twenty-four months (*d*)	
	RATE (per cent per annum)				
Date (*a*)—					
1964—1 July	3·75	3·75	4·00	....	7·00
29 September	"	"	"	4·25	"
1965—10 March	4·25	4·25	4·50	4·50	7·25
1966—17 August	4·00	4·00	4·25	"	"
1968—27 June	4·25	4·25	4·50	4·75	"
14 October	"	"	"	"	7·50
1969—30 June	"	"	"	"	"
	ANNUAL AVERAGE RATE (per cent)				
Year—					
1964–65	3·90	3·90	4·15	4·35	7·08
1965–66	4·25	4·25	4·50	4·50	7·25
1966–67	4·03	4·03	4·28	"	"
1967–68	4·00	4·00	4·25	"	"
1968–69	4·25	4·25	4·50	4·75	7·43

(*a*) The dates shown, other than 1 July 1964 and 30 June 1969, are those on which the revised rate (or rates) came into operation. (*b*) Prior to 8 April 1964 banks were not permitted to accept fixed deposits for less than three months. From 8 April 1964 banks were permitted to accept deposits of more than $100,000 for periods of thirty days but less than three months. (*c*) From 17 November 1960 to 9 September 1962 banks did not accept deposits for periods longer than twelve months. From 10 September 1962 to 28 September 1964 banks were permitted to accept deposits for periods up to fifteen months. From 29 September 1964 banks were permitted to accept deposits for periods of from twelve to eighteen months. (*d*) From 29 September 1964 banks were permitted to accept deposits for periods of more than eighteen months up to twenty-four months.

The following table shows the rates of interest paid on depositors' balances by The Rural and Industries Bank of Western Australia (Savings Bank Division) and by other savings banks during the period 1 July 1964 to 30 June 1969.

SAVINGS BANKS—RATES OF INTEREST ON DEPOSITORS' BALANCES

Date (*a*) or year	The Rural and Industries Bank of Western Australia (*b*)			Other savings banks		
	Ordinary accounts (*c*)	Friendly and other society accounts		Ordinary accounts (*c*)	Friendly and other society accounts	
	$1–$10,000	$1–6,000	$6,001 and over	$1–$10,000	$1–6,000	$6,001 and over
	RATE (per cent per annum)					
Date (*a*)—						
1964—1 July	3·50	3·50	1·75	3·25	3·25	1·75
1965—1 April	3·75	3·75	2·00	3·50	3·50	2·00
1968—1 August	4·00	4·00	2·25	3·75	3·75	2·25
1969—30 June	"	"	"	"	"	"
	ANNUAL AVERAGE RATE (per cent)					
Year—						
1964–65	3·56	3·56	1·81	3·31	3·31	1·81
1965–66	3·75	3·75	2·00	3·50	3·50	2·00
1966–67	"	"	"	"	"	"
1967–68	"	"	"	"	"	"
1968–69	3·98	3·98	2·23	3·73	3·73	2·23

(*a*) The dates shown, other than 1 July 1964 and 30 June 1969, are those on which the revised rates came into operation. (*b*) Savings Bank Division. (*c*) Prior to 1 March 1967 no interest was payable on amounts in excess of $6,000 ; from 1 March 1967 no interest payable on amounts in excess of $10,000.

INSURANCE

General Insurance

General insurance is available to the public in Western Australia from a number of companies and, in some fields, from the State Government Insurance Office. There is also a Motor Vehicle Insurance Trust whose activities are confined to motor vehicle third party insurance.

During 1968-69, there were 159 companies operating in Western Australia. The majority of these were ' tariff ' offices, being members of the Fire and Accident Underwriters' Association and issuing the standard policies of the Association at uniform premium rates. The remainder were ' non-tariff ' companies effecting insurances at competitive rates and reinsuring direct with Lloyd's or other underwriters.

The State Government Insurance Office covers fire, marine and general insurance risks for State Government instrumentalities and semi-government and local government authorities. It also conducts some classes of insurance business for the general public, the principal transactions being workers' compensation and comprehensive motor vehicle insurance. By authority of amendments to the State Government Insurance Office Act in 1954 and 1958 the Office engages in personal accident insurance in respect of school children and students under a policy which indemnifies the parent or guardian against the cost of medical and surgical treatment and funeral and other expenses.

The following table gives details of revenue and expenditure relating to fire, marine and general insurance during each of the years from 1964-65 to 1968-69. It contains only selected items of statistics and is therefore not suitable for the construction of a ' Profit and Loss ' statement or ' Revenue Account '. The amounts shown as ' Premiums ' represent the full amount receivable in respect of policies issued or renewed during the year, less returns, rebates and bonuses paid or credited to policy holders during the year. They are not adjusted to provide for premiums unearned at the end of the year and consequently the amounts differ from ' earned premium income ' appropriate to the year. The amounts shown as ' Claims ' include provision for outstanding claims and represent claims or losses incurred during the year. Salvage and other amounts recoverable have been deducted. The transactions of The Motor Vehicle Insurance Trust are

not included, but are shown in the table on page 294. The figures shown under the heading of ' Contributions to fire brigades ' represent payments made to the Western Australian Fire Brigades Board for the operation and maintenance of fire brigades, as required by the Fire Brigades Act.

FIRE, MARINE AND GENERAL INSURANCE (*a*)
($'000)

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
REVENUE					
Premiums—					
Motor vehicles	8,940	10,277	11,852	13,530	15,697
Fire	5,448	6,009	6,343	7,096	7,676
Workers' compensation	6,411	7,136	7,908	9,046	9,609
Householders' comprehensive	1,960	2,286	2,562	3,107	3,935
Personal accident	1,305	1,425	1,820	2,167	2,555
Hailstone	927	1,479	1,545	1,489	1,479
Marine	1,234	1,418	1,553	1,738	2,069
Other classes	1,999	2,356	2,953	3,590	4,546
Total premiums	28,224	32,385	36,535	41,762	47,566
Other (interest, dividends, rents, etc.—net)	1,011	1,059	1,225	1,484	1,711
Total revenue	29,235	33,444	37,760	43,247	49,277
EXPENDITURE					
Claims—					
Motor vehicles	6,557	7,439	8,883	10,413	11,676
Fire	1,522	1,711	1,922	1,752	2,614
Workers' compensation	5,242	5,516	6,461	7,801	8,192
Householders' comprehensive	559	555	606	832	1,961
Personal accident	563	587	766	827	1,019
Hailstone	338	970	443	272	267
Marine	372	548	587	802	1,117
Other classes	955	922	1,329	1,547	1,923
Total claims	16,108	18,247	20,995	24,246	28,769
Other—					
Management expenses	5,858	6,314	7,286	8,352	9,410
Commission and agents' charges	2,457	2,691	3,071	3,587	4,029
Taxation	740	988	841	603	792
Contributions to fire brigades	781	920	1,010	1,138	1,299
Total expenditure	25,943	29,160	33,203	37,926	44,299

(*a*) Excludes transactions of The Motor Vehicle Insurance Trust (see table on page 294). Operations of the State Government Insurance Office are included.

Life Insurance

Life insurance business throughout Australia is regulated by the *Life Insurance Act* 1945-1965 (Commonwealth), which requires companies to be registered by the Insurance Commissioner appointed under the Act and to establish statutory funds in relation to their life insurance transactions. The purpose of the Act, which supersedes State legislation, is to place life insurance business on a uniform basis throughout the Commonwealth and to afford protection to policy holders. Under a previous Commonwealth Act, the *Insurance Act* 1932-1966, the companies were required to deposit money or approved securities with the Treasurer in order to guarantee the claims of insured persons, and this provision is continued by the present Act.

At 30 June 1969, there were thirty-eight life insurance companies or societies operating in Western Australia. In terms of total sums insured, life insurance policies relate predominantly to ordinary endowment or whole-life insurance and superannuation, although an appreciable volume of industrial business is also undertaken.

Details of policies, sums insured and annual premiums for each class of business are given in the following table for the years 1964-65 to 1968-69.

LIFE INSURANCE

Year	New policies issued			Policies discontinued or reduced			Policies, etc. existing at end of year		
	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums	Policies	Sum insured	Annual premiums
	Number	$'000	$'000	Number	$'000	$'000	Number	$'000	$'000
ORDINARY BUSINESS									
1964–65	29,899	123,470	2,824	17,378	37,387	1,006	299,099	702,433	19,317
1965–66	30,028	133,568	3,016	17,514	42,407	1,023	311,613	793,594	21,310
1966–67	34,435	166,375	3,625	16,909	42,150	1,118	329,139	917,819	23,817
1967–68	37,621	203,244	4,546	17,359	49,675	1,174	349,401	1,071,388	27,189
1968–69	42,467	264,783	5,583	17,959	56,676	1,308	373,909	1,279,496	31,465
INDUSTRIAL BUSINESS									
1964–65	8,471	7,421	297	14,196	4,787	219	173,904	51,705	2,192
1965–66	8,846	8,261	334	13,107	4,948	223	169,643	55,018	2,303
1966–67	10,899	10,614	435	13,041	4,979	220	167,501	60,653	2,518
1967–68	11,168	11,815	479	10,553	5,766	248	168,116	66,702	2,750
1968–69	11,266	12,650	521	10,742	6,765	288	168,640	72,587	2,984
SUPERANNUATION BUSINESS									
1964–65	4,668	25,867	789	3,744	9,250	325	35,078	124,943	4,283
1965–66	5,213	33,286	950	4,060	15,201	423	36,231	143,028	4,810
1966–67	5,910	40,368	1,475	4,690	19,406	519	37,451	163,990	5,766
1967–68	5,978	46,868	1,462	3,941	16,778	568	39,488	194,080	6,659
1968–69	6,212	61,713	2,069	4,813	19,904	577	40,887	235,889	8,151
ORDINARY, INDUSTRIAL AND SUPERANNUATION BUSINESS									
1964–65	43,038	156,755	3,909	35,318	51,424	1,554	508,081	879,082	25,792
1965–66	44,087	175,114	4,300	34,681	62,556	1,670	517,487	991,640	28,422
1966–67	51,244	217,357	5,536	34,640	66,535	1,857	534,091	1,142,462	32,101
1967–68	54,767	261,927	6,487	31,853	72,220	1,990	557,005	1,332,170	36,598
1968–69	59,945	339,147	8,173	33,514	83,345	2,172	583,436	1,587,972	42,600

Motor Vehicle Third Party Insurance

Third party insurance in connection with motor vehicle accidents became compulsory on 1 July 1944 under the provisions of the Motor Vehicle (Third Party Insurance) Act of 1943. The Motor Vehicle Insurance Trust was established by an amendment to the Act in 1948 and comprises the general manager of the State Government Insurance Office, three members nominated by the Fire and Accident Underwriters' Association of Western Australia and one nominee of those approved insuring organisations, which are not members of the Association.

The Trust administers a Motor Vehicle Insurance Fund in which approved insurers participate. Premiums received from motor vehicle third party insurance and revenue from other sources constitute annual 'pools' and, after payment of claims and other expenses appropriate to each pool, the resulting profit or loss is shared by the participating insurers, which include the State Government Insurance Office. These shares cannot be finally determined until the last claim is paid and it is usually several years before a

pool has satisfied all the claims attributable to it. For this reason, the figures given in the following table are subject to progressive revision as the business of each pool approaches finality.

THE MOTOR VEHICLE INSURANCE TRUST
($'000)

Revenue and expenditure	Pool (*a*) for the year—				
	1964–65	1965–66	1966–67	1967–68	1968–69
Revenue—					
Premiums	4,850	5,180	6,795	6,173	(*b*) 12,118
Interest received	592	596	673	494	361
Total revenue	5,442	5,777	7,468	6,667	(*b*) 12,479
Expenditure					
Claims (*c*)	4,878	5,153	7,162	5,958	(*d*) 12,185
Commission	30	31	33	48	51
Management expenses	99	100	126	192	250
Taxation	5	5	12	18	17
Total expenditure	5,012	5,290	7,334	6,216	(*d*) 12,503

(*a*) See accompanying letterpress *Motor Vehicle Third Party Insurance*. Figures are revised to 30 June 1969. (*b*) Includes unearned premiums estimated at $2·82 million. (*c*) Includes estimate for claims outstanding. (*d*) Includes estimate of $2·75 million for claims not notified.

Health Insurance Organisations

Voluntary health insurance is offered by a number of organisations which provide one or more types of benefit covering such items as hospital and medical fees, funeral expenses and sick pay to or on behalf of contributing members and their dependants. They include societies registered under the *Friendly Societies Act, 1894-1964* and other organisations registered under the *National Health Act* 1953-1969 (Commonwealth).

Benefits are available in a wide range to meet the cost, either wholly or in part, of such services as treatment by a general or specialist medical practitioner (including surgical operations and obstetrical attention), X-ray, cardiographic and pathological examinations, physiotherapy, dental treatment, hospital care, home nursing and ambulance transport. In many cases, the Commonwealth Government pays a benefit additional to that received from the organisation. Reference to these additional benefits is made in Chapter V—*Social Conditions*. Members of friendly societies may contribute also for the supply of medicines and some societies maintain endowment assurance funds and supplementary death benefit funds.

The following tables give details, for the years 1964-65 to 1968-69, of the membership and the financial activities of friendly societies registered under the Friendly Societies Act. 'Benefit' members are those who contribute to the Sick and Funeral Fund of a society and 'honorary' members are principally those who pay only for medical and hospital benefits.

FRIENDLY SOCIETIES—NUMBER, MEMBERS AND SICKNESS BENEFITS

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
Registered societies	11	11	11	11	11
Branches	253	253	249	249	248
Members at end of year—					
Benefit members	16,744	16,316	15,964	15,715	15,465
Honorary members	31,943	33,857	35,064	34,909	37,658
Sickness benefits—					
Number of members paid	2,703	2,550	2,451	2,322	2,179
Number of weeks of sick pay	56,364	57,370	54,808	54,623	51,857

FRIENDLY SOCIETIES—REVENUE AND EXPENDITURE
($'000)

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Revenue—					
Fees, contributions and levies	1,552	1,637	1,915	2,251	2,587
Interest and rent	129	136	148	166	153
Other	155	56	211	98	141
Total revenue	1,835	1,829	2,274	2,515	2,881
Expenditure—					
Sick pay	46	45	42	41	38
Medical attendance and medicine	1,304	1,428	1,632	1,925	2,337
Death benefits	46	42	43	45	51
Administration	137	137	162	178	194
Other	116	156	124	104	144
Total expenditure	1,649	1,807	2,002	2,293	2,764
Balance of funds at end of year	3,389	3,411	3,682	3,910	4,027

REGISTERED BUILDING SOCIETIES

Building societies in Western Australia are registered under the provisions of the *Building Societies Act, 1920-1962* primarily for the purpose of raising funds to assist members by granting loans, secured on mortgage, to build or acquire homes. They also provide a means of investment for shareholder members, trustee funds and other depositors. The funds of the societies may be in the form of payment for fully-paid shares, subscriptions for contributing shares, money placed on deposit, or negotiated loans. Another important source of revenue became available to the societies in 1956-57 when, under the *Housing Agreement Act* 1956 (Commonwealth), it was provided that moneys should be allocated to approved institutions from Commonwealth funds advanced to the States in terms of the Commonwealth and States Housing Agreement. A requirement of the Act was that these institutions should receive not less than 30 per cent of total advances made to the State during each of the financial years 1958-59 to 1960-61, and this provision has been continued by later Acts. The present legislation, the *Housing Agreement Act* 1966, provides for its extension to the year ending 30 June 1971.

REGISTERED BUILDING SOCIETIES

Particulars	1964-65	1965-66	1966-67	1967-68	1968-69
Societies on register at 30 June	106	144	192	234	282
Shareholders	33,694	36,897	38,273	47,530	56,556
Borrowers	11,171	12,280	13,708	16,893	20,885
	$'000	$'000	$'000	$'000	$'000
Loans granted	13,091	12,611	14,031	24,436	48,650
Working expenses (*a*)	1,261	1,501	1,824	2,438	3,355
Liabilities—					
Investing members' funds	15,572	19,063	22,231	27,427	36,607
Borrowing members' funds	913	1,289	1,674	2,024	2,122
Deposits	8,300	9,343	10,944	17,613	42,122
Loans due to—Government	14,561	16,386	19,231	22,027	25,565
Other	7,855	10,029	12,779	17,547	26,127
Other liabilities (*b*)	389	508	723	936	1,141
Total liabilities	47,590	56,618	67,582	87,575	133,686
Assets—					
Advances on mortgages (*b*)	45,084	53,472	62,689	79,278	115,933
Other assets	2,505	3,146	4,893	8,297	17,752
Total assets	47,590	56,618	67,582	87,575	133,686

(*a*) Includes administration expenses and interest on borrowed funds but not interest on investing members' funds, borrowing members' funds, or deposits. (*b*) Excludes loans in process and advances approved but not yet paid.

The Building Societies Act provides for the constitution of a Building Societies Advisory Committee of five members, comprising the Registrar of Building Societies as chairman, the President of the State branch of the Commonwealth Institute of Valuers, two persons who are qualified and experienced in building society management and practice, and an officer of the State Public Service nominated by the Minister.

The functions of the Committee, as set out in the Act, are to make recommendations and submit proposals to the Minister with respect to regulations and model rules to be made under the Act ; any action to be taken for promoting, encouraging and assisting in the formation of societies ; improving the methods of operation of societies; charges which societies may make on and require to be paid by their members, other than share subscriptions and repayment of advances; the financing of societies in their operations and the protecting of the finances of societies; promoting the building of dwelling-houses by co-operative effort; determining and specifying the minimum standards of construction of dwelling-houses and other buildings to be accepted before advances can be made; and such other matters as the Minister refers to the Committee from time to time, or as may be prescribed.

INSTALMENT CREDIT FOR RETAIL SALES

The statistics in the following tables cover all types of instalment credit schemes which relate primarily to the financing of retail sales of goods in which repayment is made by regular predetermined instalments. Types of schemes covered include hire purchase, time payment, budget account and personal loans which relate primarily to the financing of retail sales of goods. In these statistics the term ' retail sales ' relates not only to retail sales by retail establishments coming within the scope of the Censuses of Retail Establishments conducted periodically by the Commonwealth Statistician, Canberra (see Chapter IX, Part 2), but includes also other sales of goods to final purchasers (*e.g.* plant and machinery).

In the next two tables, two major classifications of instalment credit statistics are adopted: type of credit and type of business.

The term ' retail businesses ' in the latter category relates to retailers who provide their own finance, and also to subsidiary finance businesses set up by retailers (or by groups engaged mainly in retail trading), primarily for the purpose of financing their retail sales. All other businesses engaged in instalment credit financing of retail sales, irrespective of whether their main activity is finance, constitute ' non-retail finance businesses '.

More detailed information regarding classifications used in the following tables may be found in the annual bulletin *Insurance and Other Private Finance* and in monthly and quarterly statements relating to instalment credit for retail sales issued by the Commonwealth Statistician, Canberra.

Details of the balances outstanding at 30 June 1965 to 1969, according to type of credit and type of business, are given in the following table.

INSTALMENT CREDIT FOR RETAIL SALES—BALANCES OUTSTANDING (*a*)
($ million)

At 30 June—	Type of credit		Type of business		Total
	Hire purchase	Other instalment credit	Retail (*b*)	Non-retail finance	
1965	93·2	16·7	27·5	82·4	109·9
1966	98·7	16·8	25·9	89·6	115·5
1967	101·1	*25·6	*25·4	101·3	*126·7
1968	119·8	32·7	26·8	125·8	152·6
1969	133·1	38·0	27·8	143·2	171·0

(*a*) Includes hiring charges, interest and insurance marily for financing their retail sales. * Revised.

(*b*) Includes subsidiary finance businesses set up by retailers pri-

The following table shows for broad commodity groups the amount financed according to type of credit and type of business during the period 1964-65 to 1968-69.

INSTALMENT CREDIT FOR RETAIL SALES—AMOUNT FINANCED (*a*)
($ million)

Year	Type of credit		Type of business		Total
	Hire purchase	Other instalment credit	Retail (*b*)	Non-retail finance	
MOTOR VEHICLES, TRACTORS, ETC.					
1964–65	42·2	5·2	4·2	43·1	47·4
1965–66	45·9	5·6	4·9	46·6	51·5
1966–67	48·7	*11·5	5·0	55·2	*60·2
1967–68	55·6	19·1	5·2	69·4	74·7
1968–69	60·2	21·7	6·2	75·7	81·9
PLANT AND MACHINERY					
1964–65	7·8	0·1	0·5	7·4	7·9
1965–66	10·5	0·8	0·9	10·4	11·3
1966–67	11·4	2·8	1·8	12·4	14·2
1967–68	13·8	4·1	1·9	16·0	17·9
1968–69	12·6	4·7	2·0	15·3	17·3
HOUSEHOLD AND PERSONAL GOODS					
1964–65	10·3	9·8	15·3	4·8	20·1
1965–66	10·7	9·6	15·3	5·0	20·3
1966–67	11·4	*11·5	*16·8	6·1	*22·9
1967–68	13·3	11·8	17·9	7·1	25·1
1968–69	14·0	11·4	18·7	6·7	25·4
TOTAL					
1964–65	60·3	15·1	20·0	55·3	75·3
1965–66	67·1	15·9	21·0	62·0	83·1
1966–67	71·5	*25·8	*23·6	73·7	*97·3
1967–68	82·7	34·9	25·1	92·5	117·6
1968–69	86·8	37·8	26·9	97·7	124·6

(*a*) Excludes hiring charges, interest and insurance. (*b*) Includes subsidiary finance businesses set up by retailers primarily for financing their retail sales. * Revised.

FINANCE COMPANIES

Information relating to the lending operations of finance companies in Western Australia is given in the following tables. A comprehensive account of the scope of the statistics, definitions, and more complete details of the transactions of finance companies are given in the annual bulletin *Finance Companies* and the monthly statement *Finance Companies*, published by the Commonwealth Statistician, Canberra.

For the purpose of these statistics, finance companies are defined as companies which are engaged mainly in providing to the general public (businesses as well as persons in their private capacity) credit facilities of the following types: hire purchase and other instalment credit for retail sales; wholesale hire purchase; other consumer and commercial loans; and factoring. The finance companies covered in these statistics, in so far as they provide credit for retail sales, are also included in the statistics shown in the preceding section *Instalment Credit for Retail Sales*.

Amount Financed. The following table shows the amount financed, according to type of agreement, *i.e.* instalment credit for retail sales, wholesale hire purchase, personal loans, mortgage loans, commercial loans and factoring, in Western Australia for the years 1964-65 to 1968-69.

FINANCE COMPANIES—AMOUNT FINANCED : TYPE OF AGREEMENT
($ million)

Year	Instalment credit for retail sales	Wholesale hire purchase	Personal loans	Mortgage loans	Commercial loans and factoring	Total
1964–65	46.1	28.7	3.3	18.1	2.7	98.7
1965–66	52.3	35.9	3.3	17.0	4.1	112.7
1966–67	62.2	61.7	3.4	29.4	6.3	163.0
1967–68	78.2	73.8	3.7	51.7	7.4	214.7
1968–69	82.9	81.9	5.9	88.1	11.6	270.5

Collections and other Liquidations of Balances. The following table shows the collections and other liquidations of balances, according to type of agreement, *i.e.* instalment credit for retail sales, wholesale hire purchases, and other consumer and commercial loans and factoring, made by finance companies in Western Australia for the years 1964-65 to 1968-69.

FINANCE COMPANIES—COLLECTIONS AND OTHER LIQUIDATIONS OF BALANCES
($ million)

Year	Contracts including charges			Contracts excluding charges			Total, all contracts
	Instalment credit for retail sales	Other consumer and commercial loans	Total	Wholesale hire purchase	Other consumer and commercial loans and factoring	Total	
1964–65	53.7	12.6	66.3	29.4	5.9	35.3	101.6
1965–66	58.8	17.9	76.8	34.7	6.4	41.1	117.9
1966–67	67.9	25.0	92.9	59.7	9.3	68.9	161.8
1967–68	79.3	33.4	112.7	71.0	14.9	85.9	198.6
1968–69	90.3	53.1	143.5	80.9	33.6	114.5	258.0

Balances Outstanding. The following table shows the balances outstanding in Western Australia, according to type of agreement, and the total balances outstanding at the end of each year from 1964-65 to 1968-69.

FINANCE COMPANIES—BALANCES OUTSTANDING : TYPE OF AGREEMENT
($ million)

End of year—	Contracts including charges			Contracts excluding charges			Total, all contracts
	Instalment credit for retail sales	Other consumer and commercial loans	Total	Wholesale hire purchase	Other consumer and commercial loans and factoring	Total	
1964–65	69.6	29.6	99.2	3.4	7.0	10.4	109.6
1965–66	76.2	33.2	109.4	5.0	9.9	14.9	124.3
1966–67	86.6	44.4	130.9	7.3	15.2	22.5	153.4
1967–68	106.6	64.9	171.5	10.5	26.7	37.2	208.6
1968–69	122.1	91.8	213.9	12.2	45.0	57.2	271.1

Business Equipment and Plant on Lease. The following table shows the initial capital cost of business equipment and plant on lease and the balances outstanding in Western Australia at the end of each year from 1964-65 to 1968-69.

FINANCE COMPANIES—BUSINESS EQUIPMENT AND PLANT ON LEASE
($ million)

Year	Initial capital cost of goods newly leased during year	Balances outstanding at end of year
1964–65	(*a*)	3.0
1965–66	(*a*)	3.9
1966–67	3.7	6.0
1967–68	9.7	11.8
1968–69	11.2	18.0

(*a*) Not available.

Instalment Credit for Retail Sales. The following table shows additional details, for Western Australia, of the total instalment credit for retail sales transactions of finance companies. Amount financed is dissected by type of commodity, and collections and other liquidations of balances are divided into cash collections and other liquidations.

FINANCE COMPANIES—INSTALMENT CREDIT FOR RETAIL SALES
($ million)

Year	Amount financed during year					Collections and other liquidations during year			Balances outstanding at end of year
	New motor vehicles, tractors, etc.	Used motor vehicles, tractors, etc.	Plant and machinery	Household and personal goods	Total	Cash collections	Other liquidations	Total	
1964–65	17.6	22.3	5.2	0.9	46.1	52.3	1.4	53.7	69.6
1965–66	20.0	21.0	7.7	3.6	52.3	57.3	1.5	58.8	76.2
1966–67	24.3	23.9	9.1	4.8	62.2	65.3	2.6	67.9	86.6
1967–68	31.9	29.9	10.8	5.6	78.2	76.3	2.9	79.3	106.6
1968–69	33.8	34.2	10.4	4.6	82.9	86.1	4.2	90.3	122.1

BANKRUPTCY

Under the provisions of the *Bankruptcy Act* 1966-1969 (Commonwealth), which is administered by the Attorney-General, the State of Western Australia is a proclaimed Bankruptcy District and the Supreme Court of Western Australia has federal jurisdiction in bankruptcy matters. There is a Registrar in Bankruptcy whose duties include the holding of public sittings for the examination of bankrupts, the examination of witnesses, the issuing of bankruptcy notices and creditors' petitions, and such other duties as are specified in the Act or delegated to him by the Court. Another bankruptcy officer is the Official Receiver, who acts under the general authority and direction of the Court and whose duties relate to the conduct of the debtor and to the realisation and administration of his estate.

An order for the sequestration of an estate may result from a petition by either the debtor or the creditors. In cases where it appears certain that the assets of a deceased estate will be insufficient to meet the debts, the executor or a creditor may petition to have the estate administered in bankruptcy.

Compositions, deeds of assignment and deeds of arrangement are provided for in Part X of the Act. A debtor may call a meeting of his creditors and either compound with them to pay a certain sum in the $ as full settlement of his debts or enter into a deed of arrangement allowing him a specified time in which to pay. On the other hand, his creditors may require him to execute a deed of assignment, by which control of his affairs passes to a trustee registered under the Act, or to file a petition in bankruptcy.

The following table relates to bankruptcy proceedings during each of the years from 1964-65 to 1968-69.

BANKRUPTCY PROCEEDINGS

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
Sequestration orders (*a*)—					
On creditors' petitions	11	10	12	4	18
On debtors' petitions (*b*)	225	187	183	218	206
Assets $'000	175	187	303	230	495
Liabilities $'000	892	755	898	1,013	1,081
Compositions and assignments without sequestration—					
Number	72	80	82	52	60
Assets $'000	423	2,283	*632	745	896
Liabilities $'000	719	2,476	*850	941	1,100

(*a*) Includes orders for administration of deceased debtors' estates. (*b*) Includes petitions by legal personal representatives of deceased debtors. * Revised.

PUBLIC TRUST OFFICE

The *Public Trustee Act, 1941-1968* establishes the Public Trust Office administered by the Public Trustee.

The principal functions of the Public Trustee are the administration of the estates of deceased persons, including intestate estates; the management of the affairs of certain persons rendered incapable by mental illness or other infirmity; and the receipt of moneys under the control or order of the Supreme Court of Western Australia, to be invested and used for the maintenance, education or other benefit of the persons entitled thereto. The Public Trustee receives from the Workers' Compensation Board funds to be held in trust for investment and to be paid out at the direction of the Board. He may also act in the capacity of agent in cases where a person previously incapable of managing his affairs recovers from the incapacity and requests the Public Trustee to continue his trusteeship.

PUBLIC TRUST OFFICE

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
Matters accepted for administration—					
Estates of deceased persons	1,129	1,110	1,255	1,287	1,283
Estates of mentally incapable persons	282	282	549	471	488
Court trusts	189	129	111	145	175
Workers' compensation	....	82	131	99	125
Agencies	29	31	42	79	25
Total	1,629	1,634	2,088	2,081	2,096
Matters on hand at 30 June	4,625	4,869	5,145	5,349	5,604
Value of transactions—	$'000	$'000	$'000	$'000	$'000
Trust moneys received	4,700	5,063	6,438	7,356	8,157
Trust moneys paid	4,063	4,628	5,420	6,303	7,201
Unclaimed moneys paid to Consolidated Revenue Fund	37	67	39	45	49
Value of estates and other matters on hand at 30 June	15,339	16,697	19,367	24,185	29,539

OFFICE OF TITLES

The Office of Titles is established under the provisions of the *Transfer of Land Act, 1893-1969.* The Act provides for the appointment of a Commissioner of Titles and a Registrar of Titles. The principal functions of the Office are the registration and recording of all instruments and dealings affecting privately-owned land or land alienated from the Crown, the certification and issue of titles to land, and the maintenance of a register of legal ownership.

The number of documents accepted for registration during the year ended 30 June 1969 was 133,385, an increase of almost 17 per cent over the number in 1967-68.

OFFICE OF TITLES

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
Number of registrations—					
Certificates of title—					
Crown Grant	1,279	1,352	1,648	2,226	1,924
Other	13,815	12,554	14,823	16,524	20,939
Leases—					
Crown	993	815	792	678	508
Other	50	45	67	30	10
Transfers	31,924	28,529	35,170	39,240	44,928
Mortgages	23,826	22,320	27,877	31,445	38,031
Discharges of mortgages	18,108	17,664	21,535	23,486	29,481
Caveats lodged	6,468	4,899	4,418	4,693	5,442
Amount of consideration—	$'000	$'000	$'000	$'000	$'000
Transfers	190,636	184,985	254,610	336,504	494,271
Mortgages	139,281	140,117	184,278	244,349	370,314
Fees collected	357	336	401	449	870
Expenditure	363	424	487	529	617
Assurance Fund—					
Amount of credit at 30 June	182	193	204	217	231

COMPANIES REGISTRATION OFFICE

The Registrar of Companies is responsible, subject to the Minister, for the administration of the *Companies Act, 1961-1969*, the *Business Names Act, 1962*, the *Associations Incorporation Act, 1895-1969* and the *Bills of Sale Act, 1899-1966*.

The following table gives a summary of operations under these Acts during the five-year period ended 31 December 1968.

COMPANIES REGISTRATION OFFICE

Particulars	1964	1965	1966	1967	1968
Number of registrations effected—					
Local companies (*a*)	533	547	665	911	1,631
Foreign companies (*b*)	231	238	225	228	315
Business names	9,228	9,929	10,798	12,724	13,528
Associations	80	77	65	72	79
Bills of sale and liens—					
Registrations	54,713	51,518	56,835	57,120	44,674
Satisfactions entered	877	759	676	647	561
	$'000	$'000	$'000	$'000	$'000
Nominal capital of local companies registered during year	54,949	123,534	42,372	77,045	87,480
Amounts of bills of sale and liens—					
Registrations	112,499	86,672	166,571	165,172	138,603
Satisfactions entered	9,038	6,903	7,536	4,324	2,994
Fees collected (*c*)	391	434	397	436	508

(*a*) Companies incorporated in Western Australia. (*b*) A company incorporated outside Western Australia is required to register as a 'foreign' company if carrying on business in Western Australia. (*c*) Year ended 30 June.

THE STOCK EXCHANGE OF PERTH

The Stock Exchange of Perth commenced operations in 1889, and conducted business at a number of locations before moving in December 1968 to its present quarters at Exchange House. These premises were designed and constructed to provide adequate space for total post trading, which was introduced in July 1967 replacing the call system in which brokers made bids from their desks as stocks were called by a member of the Exchange staff.

At 31 October 1969 there were thirty members of The Stock Exchange of Perth, and the number of companies registered on its official list was 335. Corresponding figures as at 31 October 1968 were twenty-seven and 316.

The following table gives details of turnover during the years 1965-66 to 1968-69. A revised system of sales recording was introduced in 1965-66, and comparable figures for earlier years are not available.

THE STOCK EXCHANGE OF PERTH—TURNOVER OF STOCKS AND SHARES
(Figures supplied by The Stock Exchange of Perth)

Particulars	Year ended 31 October—			
	1966	1967	1968	1969
NUMBER OF SHARES TRADED				
	'000	'000	'000	'000
Industrial	9,722	13,330	14,960	16,460
Mining—				
Oil	4,583	13,109	15,016	33,465
Other			20,040	33,784
Total	14,305	26,439	50,016	83,709
VALUE OF TURNOVER				
	$'000	$'000	$'000	$'000
Shares—				
Industrial	n.a.	n.a.	31,410	35,613
Mining—				
Oil	n.a.	n.a.	13,918	11,087
Other	n.a.	n.a.	48,987	50,729
Total	n.a.	n.a.	94,315	97,429
Commonwealth and semi-government loans	9,384	3,912	445	583
Debentures, unsecured notes, etc.	476	255	138	233
Total	9,860	4,167	583	816
Total value of turnover	n.a.	n.a.	94,898	98,245

n.a. denotes ' not available '.

LOTTERIES AND BETTING

Lotteries

The Lotteries Commission was established under the provisions of the *Lotteries (Control) Act, 1932.* The legislation currently in force is the *Lotteries (Control) Act, 1954-1967.* The Commission, as constituted by the Act, consists of four members appointed by the Minister. The principal functions of the Commission are to conduct lotteries in Western Australia to raise money for charitable purposes, and to control lotteries conducted by other persons.

The Act requires that all prizes distributed in lotteries conducted by the Commission shall be cash prizes. It is further provided that the total expenses of conducting lotteries in any year, including commission payable on ticket sales and the remuneration of members of the Commission, shall not exceed 25 per cent of the gross amount received from the sale of tickets.

The Commission is required to pay 20 per cent of all moneys received in respect of lotteries which it conducts into a special account kept at the Treasury in terms of the *Hospital Fund Act, 1930-1937.* Moneys remaining to the credit of the Commission after meeting all outgoings authorised by the Act may, with the consent of the Minister, be applied to any approved charitable purpose or in the purchase, improvement or maintenance of lands and buildings for the purposes of the Act.

The following tables show the number of lotteries conducted by the Commission during the five-year period ended 30 June 1969, the number of tickets sold, the receipts from ticket sales, and the financial transactions of the Commission.

LOTTERIES COMMISSION—NUMBER OF CONSULTATIONS AND TICKET SALES

Year	Type of lottery							Total
	$5	$4	$3	$2	$1	50c	25c	
NUMBER OF CONSULTATIONS								
1964–65	....	....	1	2	2	12	89	106
1965–66	1	....	1	1	2	14	85	104
1966–67	2	....	....	3	3	16	83	107
1967–68	1	....	1	....	6	16	86	110
1968–69	....	2	2	....	8	26	72	110
NUMBER OF TICKETS SOLD ('000)								
1964–65	....	....	100	200	200	1,200	8,900	10,600
1965–66	100	....	100	100	200	1,400	8,500	10,400
1966–67	200	....	....	300	300	1,600	8,300	10,700
1967–68	100	....	100	....	600	1,600	8,600	11,000
1968–69	....	200	150	....	800	2,600	7,200	10,949
RECEIPTS FROM TICKET SALES ($'000)								
1964–65	....	....	300	400	200	600	2,225	3,725
1965–66	500	....	300	200	200	700	2,125	4,025
1966–67	1,000	....	....	600	300	800	2,075	4,775
1967–68	500	....	300	....	600	800	2,150	4,350
1968–69	....	800	450	....	800	1,300	1,800	5,150

LOTTERIES COMMISSION—FINANCIAL TRANSACTIONS
($'000)

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
GENERAL ACCOUNT					
Receipts from ticket sales	3,725	4,025	4,775	4,350	5,150
Expenses—					
Prize money	2,150	2,339	2,803	2,493	3,001
Commission on ticket sales	316	338	391	367	421
Salaries and superannuation	84	91	104	97	98
Printing, stationery and equipment	61	84	39	29	37
Other	27	27	121	128	155
Total	2,637	2,879	3,458	3,114	3,713
Surplus available for distribution	1,088	1,146	1,317	1,236	1,437
ACCUMULATED FUNDS ACCOUNT					
Balance at beginning of year	206	220	233	238	236
Surplus available for distribution	1,088	1,146	1,317	1,236	1,437
Unclaimed prizes	64	50	62	66	78
Rent and interest received	41	52	40	44	31
Other	76	5	25	10	9
Total	1,474	1,473	1,678	1,594	1,791
Grants approved	1,243	1,228	1,429	1,344	1,539
Prizes paid	6	10	5	8	6
Other	5	3	6	7	3
Total	1,254	1,240	1,440	1,359	1,548
Balance at end of year	220	233	238	236	243
AMOUNT OF GRANTS PAID					
Hospitals and medical and health services	712	652	776	984	1,298
Homes, orphanages and mission centres	272	363	293	352	293
Infant health services	19	17	18	23	16
Other charitable organisations	165	304	399	251	188
Total	1,168	1,336	1,485	1,611	1,795

Betting

The *Betting Control Act, 1954-1963* and the *Totalisator Agency Board Betting Act, 1960-1966* provide for the regulation and control of betting and bookmaking on horse racing in Western Australia.

The Betting Control Act authorises the Totalisator Agency Board to issue licences enabling the holder to carry on the business of bookmaking on a race-course or at registered premises, and betting by or with a person not so licensed is unlawful.

The Totalisator Agency Board Betting Act gives the Totalisator Agency Board authority to regulate and control off-course betting on totalisators through the Board and betting with the Board. The Board consists of seven members appointed by the Governor, and comprises a chairman nominated by the Minister, three persons nominated by The Western Australian Turf Club, and three persons nominated by the Western Australian Trotting Association.

The application of the Act is confined to areas declared by proclamation to be ' totalisator agency regions '. The first agency established by the Board was opened on 18 March 1961. At 31 July 1969 there were 161 agencies in operation.

The Board derives its principal revenues from commission on bets and from a duty of 1½ per cent on the gross takings of every totalisator, as provided by the *Totalisator Duty Act, 1905-1960*. The Board may also borrow money, subject to the approval of the Treasurer. It is required that the balance of the Board's funds, after meeting all taxes, expenses and allocations, shall be paid in specified proportions to The Western Australian Turf Club and the Western Australian Trotting Association.

Details of taxes, licence fees and duties payable in connection with horse racing are shown on pages 266-7 and the amounts collected during the five-year period ended 30 June 1968 appear in the table *Net Collections of State Taxation* on page 270.

The following table shows the amounts invested on totalisators on race-courses and through agencies of the Totalisator Agency Board, and amounts invested with licensed bookmakers, during the five-year period ended 30 June 1969.

TOTALISATOR INVESTMENTS AND INVESTMENTS WITH LICENSED BOOKMAKERS

Type of investment	1964–65	1965–66	1966–67	1967–68	1968–69
	$'000	$'000	$'000	$'000	$'000
Totalisator investments—					
On course	5,042	5,832	6,454	7,342	8,708
Off course (*a*)	33,909	36,736	36,624	38,838	44,229
Total	38,951	42,568	43,077	46,180	52,938
Investments with licensed bookmakers—					
On course	19,617	20,027	24,442	27,048	31,836
Off course	816	664	375	284	353
Total	20,434	20,691	24,817	27,332	32,189
All investments—					
On course	24,659	25,859	30,895	34,391	40,544
Off course	34,726	37,400	36,999	39,121	44,582
Total	59,385	63,259	67,894	73,512	85,126
	$	$	$	$	$
Per head of mean population	73	76	79	82	92

(*a*) Investments made through agencies of the Totalisator Agency Board.

CHAPTER VII
LAND TENURE AND SETTLEMENT, WATER SUPPLY AND SEWERAGE
Part 1—Land Tenure and Settlement

An outline of the origin and development of the land tenure system in Western Australia from the early years of settlement is given in Chapter VII of the *Official Year Book of Western Australia*, Nos. 1 and 2 (New Series).

The growth of land settlement in relation to particular agricultural and pastoral activities is dealt with in the relevant sections of Chapter VIII and in the *Statistical Summary from 1829* appearing after Chapter X.

LEGISLATION AND ADMINISTRATION

By the Land Act of 1898, earlier legislation relating to the sale, occupation and management of Crown lands was consolidated and amended. Under a series of Agricultural Lands Purchase Acts which were passed between 1896 and 1904 and consolidated by the *Agricultural Lands Purchase Act, 1909*, provision was made for the repurchase by the Crown of land suitable for closer settlement. The principal criteria applied in the purchase of such land were suitability for wheat or mixed farming and proximity to transport, especially the railways.

The operation of subsequent legislation has not greatly changed the pattern of land development which was created by the *Land Act, 1898* and the *Agricultural Lands Purchase Act, 1909*. The *Land Act, 1933-1969* is now the basic statute controlling the leasing and disposal of Crown land. Closer settlement legislation relates predominantly to schemes for the benefit of returned war-service personnel. Crown land is also leased under the *Mining Act, 1904-1969*, the *Petroleum Act, 1967* and the *Forests Act, 1918-1969*, but no alienations are made under these Acts. In most freehold or leasehold titles of a residential, agricultural or pastoral nature the mineral rights, petroleum rights and, in many instances, the timber rights are reserved to the Crown.

The Department of Lands and Surveys is responsible for the leasing and alienation of Crown land, except where mining and forestry tenures are involved, and is under the control of the Minister for Lands. In certain instances, advisory or partly-executive boards have been created to assist in administration. These include the Land Board, which deals with general applications for land, and the Pastoral Appraisement Board.

Permits and leases for mining purposes are issued by the Department of Mines and those for forestry and timber milling by the Forests Department.

METHODS OF LAND ALIENATION

The principal methods of alienation provided for in the *Land Act, 1933-1969* are conditional purchase, public auction, private tender, selection under Part VIII which supersedes the Agricultural Lands Purchase Act, endowment (including free Crown grants) and reservation for public purposes. In addition to these normal methods of alienation there is provision in the Land Act for the release of land under special circumstances, where particular developmental projects are envisaged. In such cases any agreement must be ratified by the State Parliament.

The various methods of land alienation are described in greater detail in Chapter VII of the *Western Australian Year Book*, No. 8—1969 and earlier issues.

METHODS OF LEASING

Brief reference was made on page 305 to the work of the Department of Lands and Surveys, the Department of Mines and the Forests Department in granting leases of Crown lands in Western Australia. A summary of the activities of each Department in this field is given below, further details appearing in Chapter VII of the *Western Australian Year Book*, No. 8—1969, No. 6—1967 and earlier issues.

Department of Lands and Surveys

Approximately 98 per cent of the Crown land held under lease is covered by tenures granted by the Department of Lands and Surveys under the Land Act, and consists mainly of pastoral leases, special leases, leases of reserves and leases of residential lots. In addition, areas of perpetually-leased farming land have been made available to ex-servicemen under the War Service Land Settlement Act.

Department of Mines

Under the provisions of the *Mining Act, 1904-1969*, various special tenures, of which gold-mining leases, mineral leases and coal-mining leases are the most important, are granted by the Governor in connection with the mining of gold, coal and other minerals. The Act contains provisions relating to the payment of fees, rents and royalties. The Governor may exempt any person or class of persons from the payment of royalties.

Oil search permits and licences are granted by the Minister for Mines, and petroleum leases by the Governor under the provisions of the *Petroleum Act, 1967* and the *Petroleum (Submerged Lands) Act, 1967*, with authority to charge fees, rents and royalties.

Forests Department

While not designated as leases, certain of the tenures issued under the *Forests Act, 1918-1969*, such as Sawmilling Permits and Mill Site Permits, are similar in effect. A number of other leases, licences and permits are issued by the Forests Department, one of which, the Forest Produce Licence, authorises the licensee to collect various types of forest products other than millable timber. Permits are also granted for apiary sites of an area not exceeding three acres.

LAND CLASSIFICATION

Large-scale as well as detailed soil survey measures have been developed progressively in Western Australia since the early days of settlement. Soil mapping of Crown Lands in Western Australia has always been carried out as a function of the Department of Lands and Surveys. In the early years of land settlement the staff surveyors, when marking blocks, submitted classifications and commented generally on the probable yield and carrying capacity of the land, as a guide to pricing.

Modern survey techniques enables much use to be made of photogrammetric methods in the mapping and presentation of the soil survey, particularly in definition of vegetation and topographical detail such as rivers, creeks, swamps, hills, valleys, features such as rock outcrops and sand drifts, and the general contours of the land. Much topographical detail is available from the State mapping activities and this information is always used in conjunction with the field work of the soil survey.

The soils are graded into eight categories, to facilitate pricing procedure, due regard being given to the agricultural potential as determined by analysis and experimentation by the Department of Agriculture. This enables release of land in such a manner that each unit is adequate if developed on economic methods. At the same time, the soil

maps assist in the overall planning for provision and extension of services such as roads, water and power supplies, townsites and all the services essential to regional development. Pastoral potential appraisements are presented with more emphasis on the grazing potential of natural vegetation in order to assess estimated carrying capacities, rather than detailed soil types.

In addition to the soil and pastoral mapping surveys which are carried out under the direction of the Surveyor General, similar methods are used by other Government Authorities and private organisations, for forestry assessment, classification and control, and for geological mapping.

It has been estimated by the Surveyor General that, of the State's total area of 975,920 square miles, about 11 per cent is represented by the agricultural areas, 52 per cent by the pastoral areas and the remaining 37 per cent by practically unoccupied areas of the interior. Soil mapping investigations have enabled a broad assessment of the total area and a detailed assessment of the bulk of the agricultural and pastoral areas.

OCCUPATION OF LAND

The following table shows, for a selection of years during the period from 1900 to 1968, the areas of land absolutely alienated or in process of alienation and of Crown land held under certain types of lease or licence. For the years 1900, 1910 and 1920 the basis of classification according to Department has been made to conform to current practice in the issue of leases and licences. For example, tenures relating to forests, which were originally issued by the Department of Lands and Surveys and later by the Department of Mines, have been shown for those years under the heading of Forests Department. For 1930 and later years the figures are as recorded by the Departments concerned. The types of tenure included under the several departmental headings are indicated in the footnotes to the table.

LAND ALIENATED AND LAND HELD UNDER LEASE
(Acres)

Date	Area absolutely alienated	Area in process of alienation	Area of leases or licences in force on Crown land and issued (*a*) by—			
			Department of Lands and Surveys		Department of Mines (*c*)	Forests Department (*d*)
			Pastoral leases	Other leases (*b*)		
At 30 June—						
1900 (*e*)	3,462,490	3,156,798	86,429,037	10,654	84,470	851,820
1910	4,449,326	12,880,195	165,463,185	501,315	99,732	1,143,572
1920	8,763,051	14,259,769	253,436,312	2,454,204	97,387	1,622,068
1930	14,506,064	21,533,054	241,504,687	2,397,790	84,381	1,402,898
1940	18,244,428	14,192,666	204,950,557	2,008,124	93,709	2,327,371
1950	21,263,085	11,514,531	219,200,060	3,289,017	97,868	3,418,217
1960	27,343,902	12,758,807	(*f*) 216,908,871	6,623,272	93,000	4,024,720
1964	29,101,406	14,542,063	235,062,418	7,246,690	80,575	4,077,057
1965	29,757,989	14,829,752	234,677,404	7,146,560	80,529	4,150,031
1966	30,487,407	14,928,135	235,113,241	6,548,670	76,407	4,300,123
1967	31,583,401	15,199,692	237,696,865	7,018,151	99,437	3,997,282
1968	32,607,736	15,434,686	237,702,938	7,100,999	96,265	4,232,810

(*a*) See letterpress preceding table. (*b*) Comprises special leases, leases of reserves, leases of residential lots and perpetual leases. (*c*) Comprises gold-mining leases, mineral leases and miners' homestead leases. (*d*) Predominantly sawmilling permits. Includes permits for cutting wandoo for tannin extraction but excludes permits and licences for cutting timber and firewood in Goldfields areas. (*e*) At 31 December. (*f*) Apparent decrease in area due mainly to revision in the records of the Department of Lands and Surveys.

Land which is shown as 'absolutely alienated' consists mainly of farming areas, acquired originally as conditional purchase leases and subsequently alienated under Crown grant. While held under lease prior to alienation they account for most of the land shown as 'in process of alienation'. These two sets of figures taken together consequently give a broad indication of the increased use of land for agricultural purposes during the period under review. Similarly, variations in the area occupied as sheep and cattle stations may be gauged by reference to the area of pastoral leases issued by the Department of Lands and Surveys.

The passing of the Homesteads Act in 1893 and of a comprehensive Land Act in 1898 provided the basis for a rapid increase in the settlement of agricultural land. Under the Homesteads Act, any man over the age of 18 years who did not already own an area of 100 acres or more in this State could apply for a free homestead farm of 160 acres, on condition that he resided on his land during at least six months of each of the first five years and carried out prescribed improvements. With a lower minimum age of 16 years, a similar provision is contained in the *Land Act, 1933-1969*, and this provision, operating in conjunction with the conditional purchase lease system, has also been a factor in the increase in land settlement, particularly in the wheat-growing areas.

About 1905 the Department of Lands and Surveys, by implementing a system of survey and subdivision before selection, partially checked the indiscriminate selection of land by inexperienced farmers. A further stabilising influence on agricultural development was the introduction in 1909 of a system of grading Crown lands into classes, First, Second and Third according to suitability for farming.

The movement of population from the goldfields to the wheat belt contributed to the increase in the area of land in process of alienation from 3,156,798 acres in 1900 to 12,880,195 in 1910. The ultimate alienation of about one-third of this land by Crown grant is reflected in the greatly increased figures for 'absolutely alienated' land in 1920. Settlement of the wheat belt developed rapidly during and after the period 1910 to 1920, in spite of serious droughts which occurred in 1911 and 1914. Although the increased totals at 30 June 1930 were principally due to this development, they resulted in part from the acquisition during the previous ten years of farmland, mainly for dairying, in the south-west of the State under the Group Settlement Scheme. These holdings were individually much smaller than those in the wheat-growing districts, because of the type of farming and the heavy clearing costs, but the numbers involved made the total area taken up under the Scheme of some significance.

Pastoral leases, which comprise the greatest proportion of Crown land held under lease or licence, increased threefold between 1900 and 1920 and continue to cover approximately one-third of the whole State. The aggregate area of gold-mining leases, mineral leases and miners' homestead leases, appearing in the table under the heading of Department of Mines, shows comparatively little variation since 1900. However, in recent years very large areas have been included in tenures issued under the provisions of the *Petroleum Act, 1967* and in temporary reserves under the *Mining Act, 1904-1969*. At 31 December 1968 there were in force under the *Petroleum Act, 1967* 30 permits to explore covering 170,667,520 acres, 55 licences to prospect covering 4,217,740 acres and 2 petroleum leases covering 128,000 acres. In addition there were 11 permits to explore, under the *Petroleum (Submerged Lands) Act, 1967*, covering 142,611,200 acres.

From 1930 the demand for land for agricultural purposes declined considerably, the principal reason being the lower farm commodity prices which prevailed for several years prior to the second World War. After 1945, however, the demand for land again increased, stimulated by the sharp rise in export prices, notably of wheat and wool, and later by the War Service Land Settlement Scheme. The area conditionally alienated in any one year reached a post-war peak of 1,707,894 acres in 1953. During the next decade the area fluctuated between 705,874 acres in 1956 and 1,234,516 acres in 1962, and in 1968 it was 657,903 acres.

The following table gives details of areas of land for which applications were approved, during each of the years 1964 to 1968, by the Department of Lands and Surveys for conditional alienation or allocation under lease or licence. The figures shown for any year do not necessarily represent land allotted for the first time, as they may include land previously held under any of the several forms of land tenure.

CROWN LANDS—AREA OF ALLOCATIONS APPROVED BY DEPARTMENT OF LANDS AND SURVEYS (*a*)
(Acres)

Particulars	1964	1965	1966	1967	1968
Conditional alienation—					
Conditional purchases	887,007	1,077,764	916,263	1,087,583	651,774
Agricultural land purchases	2,262	....	....	611	344
Town and suburban lots	1,340	290	400	792	5,785
Miscellaneous (*b*)	20,276	260	44,487	43,769	
Total	910,885	1,078,314	961,150	1,132,755	657,903
Leases and licences—					
Pastoral leases and licences	831,631	2,434,099	3,593,254	4,232,887	1,933,357
Special leases	105,074	87,320	179,972	143,857	63,903
Miscellaneous leases (*c*)	180,665	48,279	452,730	56,041	38,119
Total	1,117,370	2,569,698	4,225,956	4,432,785	2,035,379

(*a*) See letterpress immediately preceding table. (*b*) Comprises free homestead farms and reserves. (*c*) Comprises perpetual leases, leases of reserves and leases of town and suburban lots.

GOVERNMENT LAND SETTLEMENT SCHEMES

Although, generally, the method of land alienation and settlement in the agricultural areas of Western Australia has been by independent applications by individual settlers for conditional purchase leases, there has also been a series of government land settlement schemes. The more important of these are the Soldiers' Settlement Scheme following the 1914-18 war, the Group Settlement Scheme introduced in 1921, the War Service Land Settlement Scheme which was initiated in 1945 and other lesser schemes for the settlement of civilians. An outline of each of these schemes appears in Chapter VII of the *Western Australian Year Book*, No. 7—1968 and earlier issues.

Chapter VII—continued

Part 2—Water Supply and Sewerage

The principal water supply and sewerage systems of Western Australia are under the control of two State authorities, the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Public Works and Water Supply.

The Metropolitan Water Supply, Sewerage, and Drainage Board is constituted under the provisions of the *Metropolitan Water Supply, Sewerage, and Drainage Act, 1909-1969.* It came into being on 1 July 1964 and replaced the former Metropolitan Water Supply, Sewerage and Drainage Department as the authority responsible, subject to the Minister, for the general administration of the Act. The Board consists of seven members appointed by the Governor. One member is appointed Chairman on the nomination of the Governor and the remaining members comprise the General Manager of the Board; a qualified engineer; the Under-Treasurer or an officer of the Treasury nominated by him; and three representatives of ratepayers of municipal districts within the Metropolitan Water, Sewerage and Drainage Area as described in the Act. This area of approximately 1,300 square miles constitutes the territory under the Board's administration. It embraces Perth and the metropolitan area southward to Safety Bay and Serpentine, northward to Sorrento and Herne Hill and eastward to Swan View-Sawyers Valley, Kalamunda, Bickley and Carmel, and incorporates approximately 700 square miles of the water catchment areas of the Canning and Serpentine Rivers and streams in the Darling Range.

The Department of Public Works and Water Supply controls the Goldfields and Agricultural Water Supply and the Great Southern Towns Water Supply as well as 115 local water supplies. It also provides water for irrigation purposes in the three South-West Irrigation Districts (Waroona, Harvey and Collie River), the Camballin Irrigation District and the Ord Irrigation District. In addition, a small pilot scheme supplying twenty-six growers in the Carnarvon Non-Artesian Area is being operated.

Four independent town schemes are controlled by local Water Boards in country areas under the *Water Boards Act, 1904-1969* and some local authorities supply water under the provisions of the *Local Government Act, 1960-1969.* Private companies engaged in mining in the North-West of the State provide their own water supply for mining operations, power supply and domestic use. Individual water supplies serve railways, timber mill towns, isolated mines, pastoral properties, stock routes and agricultural areas, mainly from dams, tanks, wells and bores.

The principal water storages in Western Australia are shown in the next table. Supplies for the metropolitan area and environs are drawn almost entirely from Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. Mundaring Weir, which is the source for the Goldfields and Agricultural Water Supply, is linked to Kalgoorlie by pipeline and serves the more populous parts of the Eastern Goldfields as well as certain towns and farming areas north and south of the main pipeline. As occasion arises Mundaring Weir supplies to or draws from the Metropolitan Water Supply. Stirling Dam, with a supplementary catchment at Harvey Weir, serves part of the irrigation area of the South-West. Drakes Brook Dam, Samson Brook Dam, Logue Brook Dam and Waroona Dam are also used for this purpose. Wellington Dam, on the Collie River, has been enlarged to meet not only the needs of the southern parts of the irrigation area but also of towns included in the Great Southern Towns Water Supply.

The storage capacity of the several dams and reservoirs at 30 June 1968 was as shown below.

DAMS AND RESERVOIRS—STORAGE CAPACITY (*a*)
(Million gallons)

Dam or reservoir	Storage capacity	Dam or reservoir	Storage capacity
Canning Reservoir	20,550	Serpentine Pipehead Reservoir	850
Churchman Brook Reservoir	480	Serpentine Reservoir	39,000
Drakes Brook Dam	504	17-Mile Dam (*d*)	1,209
Fitzroy Dam	1,025	Stirling Dam	12,552
Harvey Weir	(*b*) 1,765	Victoria Reservoir	189
Logue Brook Dam	5,358	Waroona Dam	3,290
Mundaring Weir	16,966	Wellington Dam	40,790
Ord River Diversion Dam (*c*)	21,467	Wungong Brook Diversion Weir	(*e*)
Samson Brook Dam	2,021		

(*a*) At 30 June 1968. (*b*) Excludes flashboard storage. (*c*) Bandicoot Bar Dam. (*d*) On Uralla Creek, an anabranch of the Fitzroy River. (*e*) Diversion weir only.

METROPOLITAN WATER SUPPLY

The sources of the metropolitan water supply are Serpentine Reservoir and Serpentine Pipehead Reservoir, Canning Reservoir, Wungong Brook Diversion Weir, Churchman Brook Reservoir and Victoria Reservoir. The supply from these sources is supplemented as necessary from a pipeline link with Mundaring Weir and from a number of artesian bores. The amount of bore water used, however, is now low in proportion to total metropolitan consumption, being rarely more than 10 per cent during a severe summer and usually considerably less.

METROPOLITAN WATER SUPPLY—QUANTITIES OF WATER DRAWN (*a*)
(Million gallons)

Source	1963–64	1964–65	1965–66	1966–67	1967–68
Canning Reservoir	4,641	7,200	7,462	8,071	5,328
Churchman Brook Reservoir	1,069	759	661	635	933
Mundaring Weir	194	238	226	282	148
Serpentine Reservoir (*b*)	11,055	10,194	11,736	13,773	16,123
Victoria Reservoir	132	596	271	(*c*)	120
Wungong Brook Diversion Weir	1,937	708	822	1,772	1,064
Metropolitan bores	599	1,093	804	1,579	1,437
Total	19,627	20,788	21,982	26,112	25,152

(*a*) Including supplies to railways and shipping. (*b*) Includes water drawn from Serpentine Pipehead Reservoir. (*c*) Not in use during 1966–67.

Victoria Reservoir, which was completed in 1891 with a capacity of 189 million gallons, was the first of the existing water conservation projects to be completed in the Darling Range. In 1921 a 23-million gallon reservoir, which is no longer used for water supply, was constructed at Bickley Brook to replace a pipehead dam, and in 1928 one with a capacity of 480 million gallons was completed at Churchman Brook. During the same period pipehead dams were built across the upper course of the Canning River and its tributary, Wungong Brook, preliminary to the construction of Canning Reservoir, which was begun in 1933 and completed in 1940. Canning Reservoir has a storage capacity of 20,550 million gallons retained by a concrete wall 218 feet high and 1,534 feet long at the crest. Serpentine Pipehead Reservoir was completed in 1957 and Serpentine Reservoir, commenced in 1957, was completed in 1961. Serpentine Reservoir is constructed of rolled earth fill and the embankment rises 171 feet above the stream bed, the length at the crest being 1,390 feet. Its capacity, which is slightly less than that of Wellington Dam on the Collie River, is 39,000 million gallons.

Water from the storages in the Darling Range is conveyed to the metropolitan area by large trunk mains and then distributed by feeder, distribution and reticulation mains, either directly from the trunk mains or from large service reservoirs at Mount Yokine,

Mount Eliza, Bold Park, Mount Hawthorn, Richmond, Melville, Buckland Hill, Hamilton Hill, Thompson Lake and Greenmount and from summit tanks and water towers situated at high points throughout the area supplied. To meet the peak demand during the summer months, supplies from these sources are supplemented from a system of artesian bores which can provide a daily maximum of 20 million gallons. On 30 June 1968, the number of consumer services was 173,068. The previous table shows the quantities of water which were drawn from the various sources during each of the five years ended 30 June 1964 to 1968.

COUNTRY WATER SUPPLIES

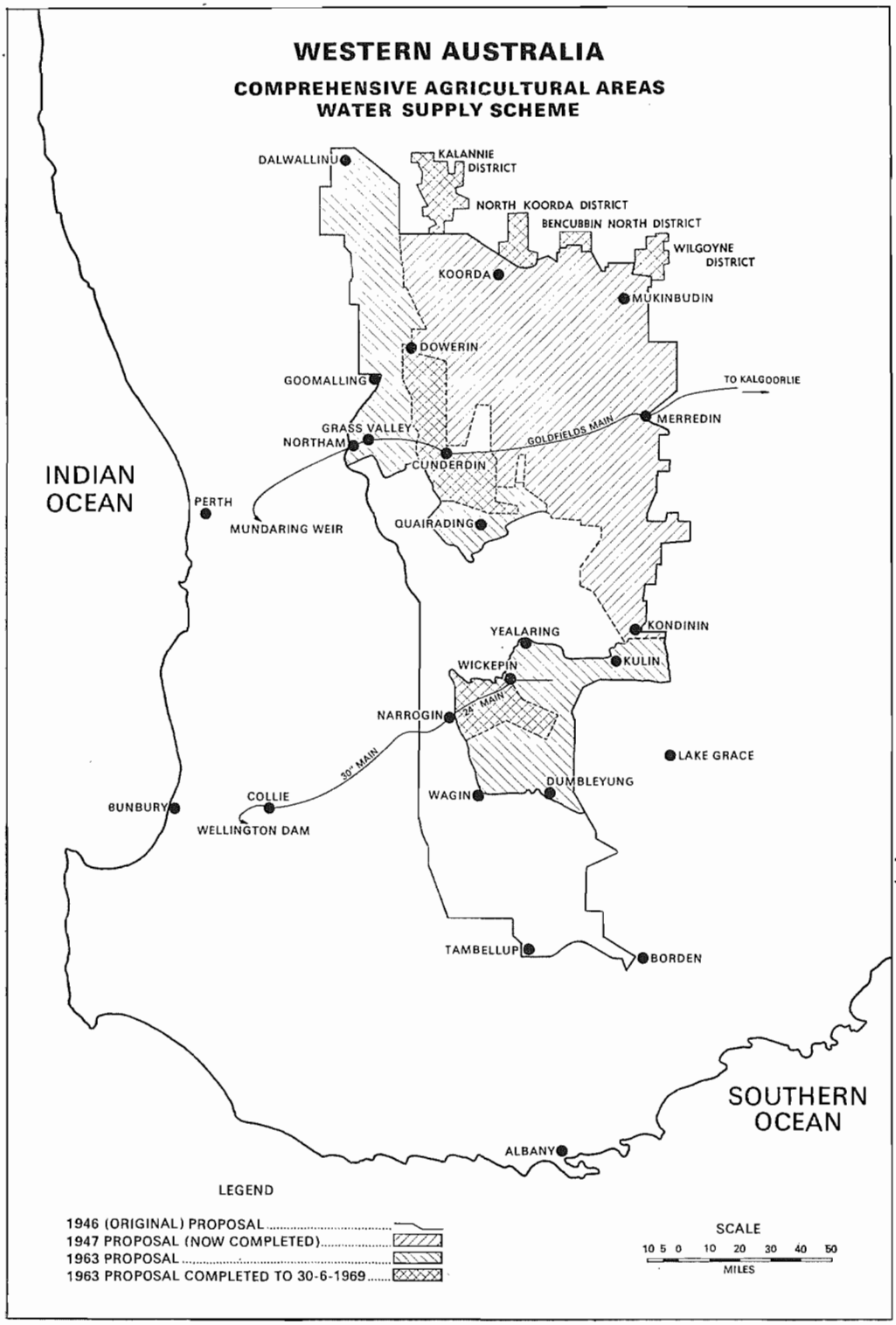
Supplies controlled by the Department of Public Works and Water Supply

Since 1947 enlargement and extension of the Goldfields and Agricultural Water Supply and the development of the Great Southern Towns Water Supply have been carried out mainly in accordance with a project known as the Modified Comprehensive Scheme. A proposal for a comprehensive water supply scheme was first submitted by the State Government to the Commonwealth Government in January 1946 when applying for financial assistance in its construction. The initial plan was intended to supply water to towns and farms in an area of 11·6 million acres in mixed farming (cereal and sheep) districts of Western Australia, as well as to increase the supply to the Eastern Goldfields. A committee appointed by the Commonwealth Government to consider the State's submission reported that certain areas within the scheme had a higher priority than others. As a result, the project was greatly reduced in scope and a modified scheme, to embrace 4·1 million acres, was agreed to by both Governments and adopted in October 1947. The extent of the scheme as originally proposed, and as modified, is shown on the map on page 313. A description of the boundary of the modified scheme is contained in a schedule to the *Agricultural Areas, Great Southern Towns, and Goldfields Water Supply Act, 1947* (State), which gave parliamentary approval of the undertaking. Commonwealth financial aid was provided by means of the *Western Australia Grant (Water Supply) Act* 1948 (Commonwealth) and later amendments, which authorised reimbursement to the State of one-half of its expenditure on the scheme, up to a maximum grant of $10 million.

The modified scheme was completed in 1961, the total expenditure amounting to $20·6 million. A request made by the State Government in 1960 for a grant equal to half the cost of extending the scheme virtually to the boundary as first proposed in 1946 was rejected by the Commonwealth Government. Following this rejection the State Government embarked on a necessarily limited programme financed from its own loan moneys, the policy being to restrict extensions to supply certain towns within the original area and farm lands adjacent to pipelines. A further request was made by the State Government in 1963 for a grant of $10·5 million payable over a seven-year period and representing one-half of the estimated cost of proposed extensions which would increase by 3·7 million acres the area served by the scheme. The Commonwealth agreed to provide assistance in the form of an interest-bearing loan up to a maximum of $10·5 million, advances to be made during a period of eight years commencing with the financial year 1965-66. Legislative authority for the loan is given by the *Western Australia (South-west Region Water Supplies) Agreement Act* 1965 (Commonwealth). The map on page 313 shows the additional areas to be reticulated under the 1963 proposals and the portion completed at 30 June 1969.

Goldfields and Agricultural Water Supply

The original purpose of this undertaking, which was formerly known as the Goldfields Water Supply was to supply water for the Coolgardie and the Kalgoorlie-Boulder areas. To provide conservation, the Helena River was dammed near Mundaring, and on completion of the reservoir in 1902 it had a capacity of 4,655 million gallons. The increasing demand for water in the area served made it necessary to augment supplies. This was achieved by raising the wall 32 feet to a height of 132 feet and when the work was completed in 1951 the enlarged capacity of the reservoir was 15,154 million gallons.


WESTERN AUSTRALIA
COMPREHENSIVE AGRICULTURAL AREAS
WATER SUPPLY SCHEME
DALWALLINU
KALANNIE DISTRICT
NORTH KOORDA DISTRICT
BENCUBBIN NORTH DISTRICT
WILGOYNE DISTRICT
KOORDA
MUKINBUDIN
DOWERIN
GOOMALLING
TO KALGOORLIE
GRASS VALLEY
NORTHAM
GOLDFIELDS MAIN
MERREDIN
CUNDERDIN
INDIAN OCEAN
PERTH
MUNDARING WEIR
QUAIRADING
KONDININ
YEALARING
WICKEPIN
KULIN
24" MAIN
NARROGIN
LAKE GRACE
30" MAIN
DUMBLEYUNG
COLLIE
WAGIN
BUNBURY
WELLINGTON DAM
TAMBELLUP
BORDEN
SOUTHERN OCEAN
ALBANY
LEGEND
1946 (ORIGINAL) PROPOSAL
1947 PROPOSAL (NOW COMPLETED)
1963 PROPOSAL
1963 PROPOSAL COMPLETED TO 30-6-1969
SCALE
10 5 0 10 20 30 40 50
MILES

The capacity has since been further increased to 16,966 million gallons by the erection of adjustable steel crest gates four feet in height. The main pipeline between Mundaring and Kalgoorlie is 346 miles long. It is for the most part 30 inch diameter steel but has 63 miles of 42 inch and 36 inch pipe in the western portion. The pipeline is equipped with eleven pump stations. The maximum pumping capacity from Mundaring Weir is 18·5 million gallons per day. The total capacity of all receiving, regulating, standby and service tanks (including three standby reservoirs at Kalgoorlie with a combined capacity of 60 million gallons) is 169 million gallons.

At 30 June 1968 the Goldfields and Agricultural Water Supply was serving 116 towns and water was being reticulated to farms in an area of 5 million acres. The number of services, length of water mains and consumption for the years 1963-64 to 1967-68 are given in the following table.

GOLDFIELDS AND AGRICULTURAL WATER SUPPLY

Year	Number of services (*a*)	Mileage of water mains (*a*)	Consumption (*a*) (million gallons)						
			Domestic	Commercial	Industrial (including railways)	Mining	Farms and market gardens	Other	Total
1963–64 (*b*)	24,114	3,919	1,048	123	222	551	627	158	2,727
1964–65	24,208	3,940	1,012	124	204	575	619	263	2,798
1965–66	25,094	3,992	930	114	246	538	517	257	2,602
1966–67	25,554	4,029	1,026	138	285	569	694	262	2,974
1967–68	26,305	4,187	1,130	142	251	579	689	285	3,077

(*a*) Figures include amounts consumed from local supplies at Waddouring-Barbalin-Knungajin, Bruce Rock, Narembeen and Kondinin. (*b*) In 1963–64 portion of the 'Hills District' previously supplied by the Goldfields and Agricultural Water Supply was transferred to the Metropolitan Water Supply.

Extensions to country towns and agricultural areas have been made from several points along the main pipeline. Norseman is connected by an extension southward from Coolgardie. A branch from this main supplies the nickel mining town of Kambalda. From a point west of Merredin water is taken northward to supplement local schemes at Waddouring-Barbalin-Knungajin. Other extensions north and south of the main pipeline provide water for a number of towns and surrounding districts, including Toodyay, Goomalling, York, Beverley and Bullfinch. A pipeline southward from Merredin to serve Bruce Rock, Narembeen, Kondinin and surrounding districts and Kulin and surrounding districts is linked to an extension south-west from Doodlakine and taken westward to supply Corrigin. A main south from Cunderdin serves Quairading and the intermediate farmlands. Areas north-west of Burracoppin are served by an extension northward from a point east of Merredin, and districts north of Kellerberrin by a pipeline connecting Kellerberrin to the Waddouring-Barbalin-Knungajin system already mentioned. Water is taken northward from Cunderdin through Minnivale to a point near Kokardine. Extensions westward, eastward and northward from this pipeline serve a number of towns and localities, including Dowerin, Wyalkatchem, Yelbeni, Koorda, Ballidu, Dalwallinu and Wongan Hills, and surrounding farm lands. An extension northward from the main pipeline serves Koolyanobbing, where iron ore is mined.

Great Southern Towns Water Supply

The Great Southern Towns Water Supply serves towns on the Great Southern Railway from Brookton to Katanning, as well as a number of other towns. Water is drawn from Wellington Dam which also supplies the Collie River Irrigation District. Work on the raising of the wall of the Dam was completed in 1960 and, with a capacity of 40,790 million gallons, it is now the largest in the State. Water is taken through Narrogin to Wickepin by means of a main pipeline 106 miles long. In addition to the pumping installation at the dam site, there are stations at a point twenty-eight miles east of the dam and at Narrogin. From Narrogin, pipelines extend forty miles northward to Brookton and fifty-nine miles southward to Katanning. A branch westward from Katanning serves the town of Kojonup and a second branch extends south-eastward through Broomehill to

Gnowangerup. An extension southward from Wickepin reaches Dumbleyung and a further branch northward extends to Bullaring through Yealering. A pipeline eleven miles long supplies water to a power station constructed for the State Electricity Commission at Muja, south-eastward from Collie.

At 30 June 1968 the Great Southern Towns Water Supply was serving twenty-five towns. Details of the number of services, length of water mains and consumption for the years 1963-64 to 1967-68 are given in the following table.

GREAT SOUTHERN TOWNS WATER SUPPLY

Year	Number of services	Mileage of water mains	Consumption (million gallons)					
			Domestic	Commercial	Industrial (including railways)	Farms and market gardens	Other (*a*)	Total
1963–64	7,328	365	337	67	71	22	68	565
1964–65	7,752	419	333	36	66	22	60	518
1965–66	7,958	450	286	35	207	24	59	611
1966–67	8,161	452	341	41	354	33	69	840
1967–68	8,507	530	361	46	179	35	69	689

(*a*) Excludes mining, for which no services were provided by the Department of Public Works and Water Supply.

Supplies to other Country Towns

One hundred and fifteen towns and localities are supplied with water from stream flow, dams, tanks, wells and bores. One hundred and fourteen of these schemes are administered under the provisions of the *Country Areas Water Supply Act, 1947-1964* and one under the *Rights in Water and Irrigation Act, 1914-1964*. The following table gives, for these local schemes, the number of services, length of water mains and consumption for the years 1963-64 to 1967-68.

DEPARTMENT OF PUBLIC WORKS AND WATER SUPPLY: LOCAL SCHEMES

Year	Number of services	Mileage of water mains	Consumption (million gallons)						
			Domestic	Commercial	Industrial (including railways)	Mining and shipping	Farms and market gardens	Other	Total
1963–64	19,593	621	946	121	164	17	54	197	1,501
1964–65	21,322	679	886	206	198	18	55	208	1,571
1965–66	22,389	796	918	234	237	18	28	254	1,689
1966–67	23,745	833	1,173	281	262	20	34	292	2,061
1967–68	25,372	857	877	254	210	17	16	241	1,615

The Department of Public Works and Water Supply is also responsible for the provision and maintenance of tanks and wells as a source of cartage water for a number of small communities in gold-mining and agricultural areas.

Other Country Water Supplies

As well as the schemes controlled by the Department of Public Works and Water Supply, there are four local Water Boards operating under the *Water Boards Act, 1904-1969* which also draw supplies from stream flow, dams, tanks, wells and bores. In addition, some local authorities exercise powers under the *Local Government Act, 1960-1969* to supply water within their boundaries. There are still, however, a large number of individual farms and pastoral stations which are not connected to public schemes and are therefore obliged to provide their own supplies. The Forests Department and sawmilling companies operate schemes to supply water to their mill towns. In a number of ports and mining towns in the North-West of the State, mining companies are responsible for the provision of their own water supplies, and while the principal source of supply is underground reserves, desalination of sea water is also being used.

Railways of the Commonwealth and State Governments make independent provision for supplies of water for their own purposes, although considerable additional quantities are consumed by the railways from other sources, such as those controlled by the Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage, and Drainage Board.

UNDERGROUND WATER

Considerable use is made of underground water by individual farmers, pastoralists, market gardeners, etc. and it is estimated that over 50,000 bores are in use in the State. The quality of the water varies from place to place and much of it is too saline for irrigation or even stock. Both pressure waters and non-pressure waters are used to supply or augment the supplies of numerous towns, including such major centres as Perth, Bunbury, Albany, Esperance and Port Hedland, and the list is growing.

Substantial advances in the knowledge of aquifers and quality of water in the main sedimentary basins have been made as a result of extensive geological surveys and exploratory drilling by the Geological Survey (a branch of the Department of Mines), several oil companies, and developmental drilling by the Department of Public Works and Water Supply, and the Metropolitan Water Supply, Sewerage, and Drainage Board.

The Department of Public Works and Water Supply and the Metropolitan Water Supply, Sewerage, and Drainage Board are responsible for all developmental works. The Geological Survey is responsible for all exploratory works, as well as for investigating and assessing the State's groundwater resources, and advising local government authorities, private industry and individuals on groundwater problems.

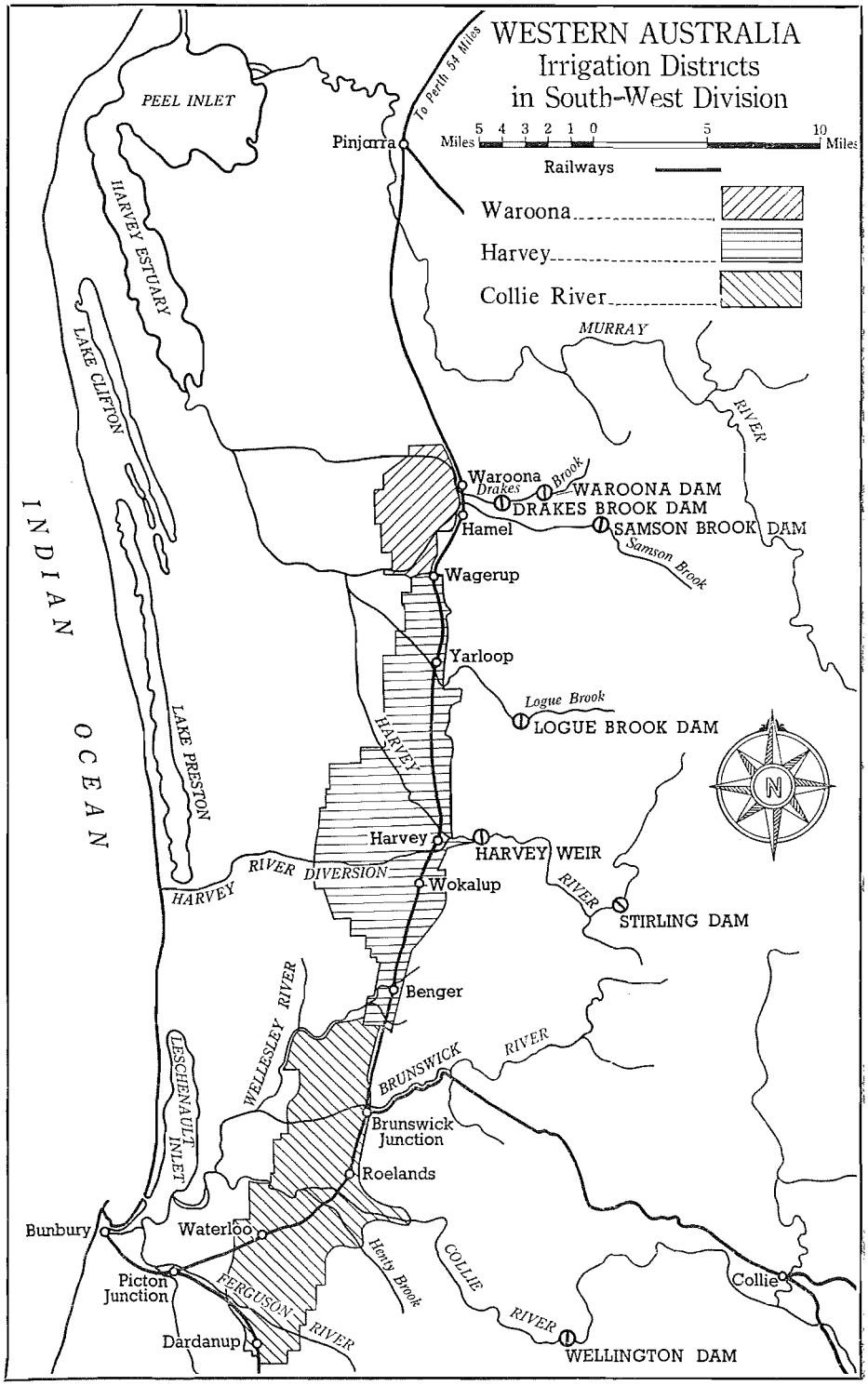
SOUTH-WEST IRRIGATION SCHEMES

Irrigation schemes have been established by the State Government on the coastal plain south of Perth in the Waroona, Harvey and Collie River Irrigation Districts between Waroona and Dardanup, the water being channelled from dams in the adjacent Darling Range.

Specialist advice on irrigation farming methods is available through the Department of Agriculture and the properties are watered on a rotational plan, according to the 'Zone', or section of the District, within which the farms are situated. Three free waterings are given each season on all rated land. All other waterings are charged for and special waterings, out of rotation, are available at a higher fee.

The Harvey Irrigation District, opened in 1916, was the first large-scale project. Harvey Weir, with a capacity of 520 million gallons on completion, was constructed as the source of water supply and the service initially provided was for 3,000 acres of land for citrus growing.

The success of dairying and stock raising and to a lesser extent vegetable growing, which have replaced citrus culture, has led to gradual but substantial extensions of the South-West irrigation area. The damming of Drakes Brook in 1931 and Samson Brook in 1941 provided a storage capacity of 2,281 million gallons which, by alterations to Samson Brook Dam in 1960, has been increased to 2,525 million gallons and is used for the irrigation of 3,060 rated acres in the Waroona Irrigation District. Construction of a third storage to serve the Waroona District was begun in 1963. Known as Waroona Dam, it has been built on Drakes Brook about three miles up-stream from the existing Drakes Brook Dam. Its capacity is 3,290 million gallons and storage, which commenced in June 1966, was available for the 1966-67 irrigation season. In 1931 the capacity of Harvey Weir was enlarged to 2,275 million gallons (including flashboard storage) and in 1948 Stirling Dam, with an original capacity of 12,060 million gallons (increased to 12,552 million gallons by alterations in 1958) was completed further up-stream on the Harvey River. These works enabled the Harvey Irrigation District to be extended northward to link with the Waroona District. Logue Brook Dam, with a capacity of 5,358 million gallons, was completed in 1963 and provides additional supplies for the Harvey Irrigation District, the rated area of which is now 13,610 acres.


WESTERN AUSTRALIA
Irrigation Districts
in South-West Division
5 4 3 2 1 0 5 10 Miles
Railways
Waroona
Harvey
Collie River
To Perth 54 Miles
PEEL INLET
Pinjarra
HARVEY ESTUARY
LAKE CLIFTON
INDIAN OCEAN
LAKE PRESTON
MURRAY RIVER
Waroona
Drakes Brook
WAROONA DAM
DRAKES BROOK DAM
Hamel
SAMSON BROOK DAM
Samson Brook
Wagerup
Yarloop
Logue Brook
LOGUE BROOK DAM
HARVEY
Harvey
HARVEY WEIR
HARVEY RIVER DIVERSION
Wokalup
STIRLING DAM
Benger
WELLESLEY RIVER
LESCHENAULT INLET
BRUNSWICK RIVER
Brunswick Junction
Roelands
Bunbury
Waterloo
Picton Junction
FERGUSON RIVER
Dardanup
Herty Brook
COLLIE RIVER
Collie
WELLINGTON DAM
N

Concurrently with developments in the Harvey and Waroona Irrigation Districts, action was taken to conserve water for the Collie River Irrigation District and Wellington Dam on the Collie River was completed in 1933. In view of its importance, not only to irrigation projects but also to the Great Southern Towns Water Supply, the wall of this reservoir has been raised and when work was completed in 1960 its capacity of 8,000 million gallons had been increased to 40,790 million gallons. It serves an area of 10,870 rated acres in the Collie River Irrigation District, which extends from Brunswick Junction to Dardanup.

Details of irrigation in each district in the years 1966-67 and 1967-68 are given in the following table.

IRRIGATION: SOUTH-WEST SCHEMES

Particulars	Irrigation district						Total	
	Waroona		Harvey		Collie River			
	1966–67	1967–68	1966–67	1967–68	1966–67	1967–68	1966–67	1967–68
Area watered—								
Pasture .... acres	3,672	4,065	13,750	13,646	12,690	12,647	30,112	30,358
Fodder crops .... „	241	348	220	349	689	811	1,150	1,508
Potatoes .... „	6	2	33	....	301	256	340	258
Other vegetables .... „	260	258	64	43	28	19	352	320
Orchards .... „	....	....	176	202	46	44	222	246
Total .... „	4,179	4,673	14,243	14,240	13,754	13,777	32,176	32,690
Acre waterings (*a*)	25,182	25,549	99,068	96,808	85,514	82,721	209,764	205,078
Average number of waterings (*b*)	6·0	5·5	7·0	6·8	6·2	6·0	6·4	6·3
Total water gauged at entry to district .... million gal	3,348	3,471	14,077	13,258	13,753	12,701	31,178	29,430
Dam capacity (*c*) .... „ „	5,815	5,815	19,675	19,675	40,790	40,790	66,280	66,280
Length of channels .... miles	46	46	154	155	126	127	326	328

(*a*) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (*b*) Total acre waterings divided by total area watered. (*c*) Excludes flashboard storage.

NORTHERN IRRIGATION SCHEMES

Although not yet comparable in size with the South-West undertakings, the irrigation areas at Carnarvon and on the Ord and Fitzroy Rivers in the northern portion of the State are of increasing significance.

Carnarvon. During the past thirty years a centre of tropical agriculture has been developed at Carnarvon, near the mouth of the Gascoyne River. At first a number of tropical fruits were grown but, until recent years, production consisted mainly of bananas. A considerable quantity of early beans is now grown for the metropolitan market and for export interstate, and production of tomatoes and a variety of other vegetables has also increased in importance.

Agricultural development has been made possible only by irrigation, as the rainfall is extremely variable and averages little more than nine inches per annum. Each holding has its own irrigation plant and, wherever possible, the pumping unit is installed on a bank of the Gascoyne River. Usually the river bed is exposed, as surface flow does not occur regularly each year. Concrete-lined wells have been sunk into the river sands and the water obtained is pumped either to storage tanks or direct to the plantation feeder channels, from which it is distributed among the plants by furrows. Because of the limitations of supply from the river sands, the State Government has instituted controls over the quantity of water pumped by growers, has commenced to develop up-river sources and is delivering supplementary water by pipeline to thirty-six plantations on the south bank of the river at the eastern extremity of the Carnarvon Irrigation District. A tropical research station is maintained at Carnarvon by the Department of Agriculture. To the early activities of this research station may be credited much of the success of the Carnarvon plantations, notably in the field of plant selection and pest control, and experimental work is being continued.

Ord River. The Ord River in the Kimberley Division traverses a tropical area which receives monsoonal rains of irregular incidence and quantity, varying from an annual mean of twenty inches in the south to thirty inches in the north. Investigations at the Kimberley Research Station, established in 1945 and operated by the Department of Agriculture in conjunction with the Commonwealth Scientific and Industrial Research Organization, have shown that the climate and soil conditions are favourable for the cultivation of sugar-cane, rice, cotton, safflower and various oil seeds. As a result of these investigations the State Government, with Commonwealth financial assistance, has embarked on a project to provide water supplies for irrigation in the area.

The Ord Irrigation Project provides for the development of 178,000 acres of land agriculturally and topographically suitable for irrigation. The project comprises four stages, the first being the construction of a diversion dam to supply water for an area of 30,000 acres. The other stages are the building of a main storage dam with a capacity of 4·6 million acre-feet (equivalent to more than 1,256,000 million gallons), the progressive development of the whole 178,000 acres, and the construction of a hydro-electric power station.

The diversion dam, situated at Bandicoot Bar about sixty-five miles by road south-east of Wyndham and thirty miles downstream from the site of the proposed main dam, was officially opened on 20 July 1963. The capacity of the diversion dam is 21,467 million gallons and irrigation from the dam commenced in April 1963.

Apart from an area of 2,400 acres formerly used as a pilot farm but now being developed privately, thirty farms are included in the first stage of the project. The farms each have an area of approximately 660 acres and cotton is the principal crop, although small areas of grain sorghum have been grown. Fattening of cattle on irrigated fodder crops shows promise as another alternative.

The diversion dam was recognised by the Commonwealth Government in August 1959 as an approved project within the meaning of the *Western Australia Grant (Northern Development) Act* 1958-1959 (Commonwealth). This legislation provides for payment by the Commonwealth to the State Government of a non-repayable grant of $10 million for development of the part of the State north of 20°S. latitude. Of this grant $8·2 million was spent on the diversion dam. In February 1963 a further approach was made to the Commonwealth requesting an amount of $3·3 million for the completion of channels and drains required to develop the whole of the 30,000 acres included in the first stage of the project. The request was approved in August 1963 and moneys made available by way of grant in terms of the *Western Australia (Northern Development) Agreement Act* 1963.

In November 1967, the Commonwealth Government approved the plan for the second phase of the Ord River Irrigation Scheme and agreed to provide financial assistance to the State for the works involved. Agreement as to the terms and conditions for financing the second phase of the scheme was announced in March 1968. In terms of the *Western Australia Agreement (Ord River Irrigation) Act* 1968 the Commonwealth agreed to provide financial assistance to the State in an amount equivalent to expenditure on the works, up to a maximum of $48·18 million. The assistance will take the form of a non-repayable grant for the construction of the main Ord dam (estimated to cost $20·93 million) and an interest-bearing loan for the associated irrigation and drainage facilities (estimated to cost $27·25 million).

Construction of the main dam commenced in 1969 and completion is planned for June 1972.

Fitzroy River. On the Liveringa flood plain, grain and fodder sorghums are being produced at Camballin, sixty-five miles south-east of Derby. Irrigation water from the Fitzroy River is diverted, by means of a weir with a capacity of 1,025 million gallons constructed across the river, through Uralla Creek, an anabranch, for seventeen miles to another dam with a storage of 1,209 million gallons constructed on Uralla Creek.

During 1967-68, water used in the irrigation of crops amounted to 4,538 acre-feet. Later it will be necessary to construct a storage dam on the upper reaches of the Fitzroy River for the large-scale developments envisaged for this area.

Details of irrigation in the Ord and Camballin Irrigation Districts for the years 1966-67 and 1967-68 are given in the following table.

IRRIGATION: ORD AND CAMBALLIN DISTRICTS

Particulars	Irrigation district				Total	
	Ord		Camballin			
	1966–67	1967–68	1966–67	1967–68	1966–67	1967–68
Area watered .... acres	13,419	13,688	530	800	13,949	14,488
Acre waterings (*a*)	103,641	83,335	(*b*)	(*b*)	(*c*)	(*c*)
Average number of waterings (*d*)	7·7	6·1	(*b*)	(*b*)	(*c*)	(*c*)
Total water gauged at entry to district million gal	14,829	12,217	1,352	1,483	16,181	13,700
Dam capacity .... " "	21,467	21,467	(*e*) 2,560	(*e*) 2,560	(*e*) 24,027	(*e*) 24,027
Length of channels .... " miles	62	63	16	20	78	83

(*a*) Area watered multiplied by number of waterings. Figures shown represent the sum of acre waterings for individual holdings in each district. (*b*) Not applicable as irrigation is continuous. (*c*) See footnote (*b*). (*d*) Total acre waterings divided by total area watered. (*e*) Includes 326 million gallons of natural storage.

Dunham River. In addition to the government irrigation undertakings mentioned above, a private scheme is now in course of development in the Dunham River valley south of its confluence with the Ord River. An agreement between the Government of Western Australia and Goddard of Australia Pty. Ltd., subsequently ratified by the *Irrigation (Dunham River) Act, 1968*, authorises the company to construct a dam on Arthur Creek, a tributary of the Dunham River, to irrigate the pilot area. The company, in terms of the agreement, is required to subdivide the pilot area into not more than ten holdings each containing an area of approximately 1,000 acres, of which some 600 acres will be irrigated.

If the company demonstrates to the Government that it is both practical and economically sound to develop the pilot area for agricultural purposes by way of closer settlement in holdings of about 1,000 acres, the company will be authorised to proceed with phase 2 of the plan—the construction of a dam on the Dunham River and a suitable water distribution system. The additional area involved in the second phase of the scheme amounts to approximately 34,000 acres.

WATER RESOURCES INVESTIGATION AND MEASUREMENT

Work on the investigation and measurement of the water resources of Western Australia, both surface and underground, has been accelerated in recent years partly due to the activities of the Australian Water Resources Council, which was established by joint action of the Commonwealth and State Governments in 1962. The Council comprises Commonwealth and State Ministers primarily responsible for water resources, with the Commonwealth Minister for National Development as Chairman.

The primary objective of the Council is the provision of a comprehensive assessment on a continuing basis of Australia's water resources, and the extension of measurement and research so as to provide a sound basis for the planning of future development.

In terms of its main objective, the Council in 1964 recommended, and the Commonwealth and State Governments agreed, that there should be an accelerated programme of establishment of stream gauging stations and investigation of underground water. Financial assistance to the States was rendered by the Commonwealth under the *States Grants (Water Resources) Act* 1964, subject to certain qualifying expenditure by each State, and during the three-year period ended 30 June 1967, non-repayable grants totalling $581,342 were received by Western Australia.





RIVER CROSSING

This scene of cattle at a river crossing in the Kimberley illustrates the reduction of water often found in northern rivers in the dry season. The rivers of the North-West from the De Grey to the Murchison flow only intermittently and between times of flood only spring-fed pools in the river bed remain.

KUNUNURRA TOWNSITE

Stretching to the horizon is the Ord River, the source of water for the first large-scale irrigation project in the north of the State. Construction of the main dam on the river commenced in 1969 and completion is planned for June 1972.

Under the *States Grants (Water Resources Measurement) Act* 1967, financial assistance to the States is continued for a further three years until 30 June 1970. The maximum amount of grant payable to Western Australia over this period, subject to the State complying with specified qualifying conditions, totals $844,650. In addition to grants received in respect of 1968-69 for measurement of discharge of rivers ($192,100) and investigation and measurement of underground water resources ($81,150), expenditure financed by the State amounted to $243,734 and $450,395, respectively.

Surface Water

To enable rivers and streams to be utilised efficiently, the quantity and quality of water flowing in many rivers and streams throughout Western Australia are being measured. These vary from comparatively small streams, to relatively large rivers such as the Ord River in the Kimberley.

The number of stream gauging stations in operation has increased steadily and on 30 June 1969 was 164.

The major part of this work is carried out by the Department of Public Works and Water Supply, but the Metropolitan Water Supply, Sewerage, and Drainage Board and the Department of Agriculture also operate gauging stations. At 30 June 1969, the number of stations operated by these authorities was 156, 5 and 3, respectively.

The distribution of the gauging stations in the various drainage divisions is as follows:

South-West Coast Division (Esperance to the Hill River)	114
Indian Ocean Division (Arrowsmith River to the De Grey River)	22
Timor Sea Division (Broome to the Ord River)	28
Total	164

Underground Water

To locate and measure the quantity and quality of underground water available to supply the ever-growing needs of town water supplies, industries, farmers, pastoralists, etc. a considerable amount of investigation, including drilling, is in progress in Western Australia. The work is being carried out by the Department of Mines, the Department of Public Works and Water Supply, and the Metropolitan Water Supply, Sewerage, and Drainage Board, with the Department of Mines assuming the major responsibility for hydro-geological work.

Underground water exploration projects in course during 1968-69 included a major investigation of the Coorow-Watheroo area, where it is hoped to locate large quantities of underground water which may be pumped inland to serve towns and farms in agricultural areas, and an investigation of the large calcrete aquifer on Millstream Station which may prove a suitable source for a regional water supply for industry, etc. in the southern Pilbara. Investigations to locate underground water to provide or augment the water supplies of Perth, Albany, Bremer Bay, Cervantes, Cranbrook, Eneabba, Nabawa, Kalbarri, Carnarvon and Port Hedland, were also carried out during 1968-69.

SEWERAGE SCHEMES

Metropolitan Sewerage

There are three major sewerage systems and one minor system administered by the Metropolitan Water Supply, Sewerage, and Drainage Board within the metropolitan area.

Sewage from the major systems either gravitates or is pumped through the pipe systems to treatment works at Subiaco, Swanbourne and Woodman Point. After treatment the effluent is discharged into the Indian Ocean, some distance from the coast under a substantial depth of water.

A small composite system serves Armadale. Sewage from the area is treated at the Westfield Treatment Plant, the treated effluent being disposed of in sandy soil at the plant site.

The following table shows the number of services, population served and the length of sewer mains under the control of the Metropolitan Water Supply, Sewerage, and Drainage Board at 30 June for each of the years 1964 to 1968.

METROPOLITAN SEWERAGE SYSTEMS

At 30 June—	Services	Population served	Length of sewers
	number	persons	miles
1964	68,958	241,740	769
1965	69,553	242,340	777
1966	70,283	243,500	816
1967	71,188	260,000	848
1968	72,177	280,048	886

Country Towns Sewerage

A number of towns outside the metropolitan area have sewerage schemes which were constructed pursuant to the *Country Towns Sewerage Act, 1948-1967*. In addition, a further eight schemes have been provided by local government authorities or as private development in mining areas by certain mining companies.

Some expansion in local authority construction can be anticipated because of a recent subsidy proposal of the State designed to assist local government authorities in developing this service.

The following table shows the number of towns sewered, the area sewered and the number of services controlled by the Department of Public Works and Water Supply at 30 June for each of the years 1964 to 1968.

COUNTRY SEWERAGE SYSTEMS

At 30 June—	Number of towns sewered	Area sewered	Length of sewers	Services
	number	acres	miles	number
1964	16	3,150	(*a*)	4,704
1965	18	3,456	133	5,251
1966	19	3,956	151	5,774
1967	20	4,317	162	6,417
1968	21	4,525	173	7,201

(*a*) Not available.

CHAPTER VIII—PRODUCTION

Secondary industry in Western Australia has become increasingly important and now almost equals primary industry in terms of net value of production. This relationship, however, is being materially affected by the development of recent major discoveries of minerals, including oil, and may change substantially in the next few years. Primary production, and in particular the agricultural, pastoral and mining sectors, may therefore still be regarded as having the greater influence on the economy of the State.

Farming has been carried on from the earliest years of settlement but its development was originally restricted by inadequate transport, shortage of labour and a limited local consumption. These difficulties were partly overcome by the introduction of convict labour during the period from 1850 to 1868, but the Colony was still dependent on the importation of many items of foodstuffs when the position was aggravated by a great influx of people attracted by the discovery of gold in the Kimberley in 1885 and by the spectacular finds in the 1890s at Coolgardie and Kalgoorlie and at other places on the eastern goldfields. Between 1890 and 1905 the population increased from 48,502 to 250,138 and, despite an increase in the area under crop from 69,700 acres to 364,700 acres during these years, agricultural production remained insufficient to meet local demands.

A decline in gold mining which began after 1903 caused a growing interest in farming as an alternative pursuit and by 1911 the area under crop had increased to more than 1 million acres, of which 612,000 were sown to wheat for grain. Since that time, although there have been some fluctuations in agricultural activity, the area under crop has risen to almost 9 million acres of which 6·65 million acres are sown to wheat for grain.

Circumstances similar to those applying to agriculture stimulated the growth of the pastoral industry and large cattle and sheep stations were established on land leased from the Crown, mainly in the northern and north-western areas and in parts of the eastern goldfields. The number of cattle in the State increased from 131,000 to 825,000 and of sheep from 2,525,000 to 5,159,000 between 1890 and 1910, when nearly three-fifths of the sheep were in the pastoral areas and little more than two-fifths in the agricultural areas as defined on pages 351–2. With the development of mixed wheat and sheep farming the total number of sheep has risen and in 1968 was 30·2 million, but only about 12 per cent are now in the pastoral areas. Of the total of 1,426,936 cattle in the State in 1968 over 38 per cent were in the Kimberley Division where cattle are raised almost exclusively for meat production.

The contribution of mining to the Western Australian economy is substantial and in 1968 the major minerals in terms of value of production were iron ore, petroleum, gold, mineral beach sands, coal, bauxite, nickel, manganese and tin. Production of minerals is expected to increase still further as deposits of petroleum, nickel, iron ore and bauxite in particular are developed.

Dairying with an average annual milk production over the last five years of over 58 million gallons, is a significant factor in primary industry and in 1967–68 the output of butter was 13,248,157 lb and of cheese 4,310,495 lb.

The demand for jarrah and karri hardwoods has long been a feature of the State's economy. Indiscriminate cutting in earlier years and disregard of the need for preservation and regeneration threatened the survival of the timber industry. However, governmental controls over forestry operations and a policy of reforestation introduced in 1918 have proved to be effective and the industry is now established on a firm basis, timber forming an important component of primary production.

The overseas demand for rock lobsters (crayfish), which developed in post-war years, gave great impetus to the fishing industry and the total value of the take of fish has increased from $739,000 in 1947 to $19,627,000 in 1967-68. Interest in whaling was evident in the first years of colonisation, exports of oil and whalebone being recorded in the earliest of the colonial Blue Books. Whaling activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949 when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. Since the 1963 season, activity has declined considerably following the imposition by the International Whaling Commission of a total ban on the taking of humpback whales. The only station now operating is at Frenchman Bay near Albany where sperm whaling is conducted.

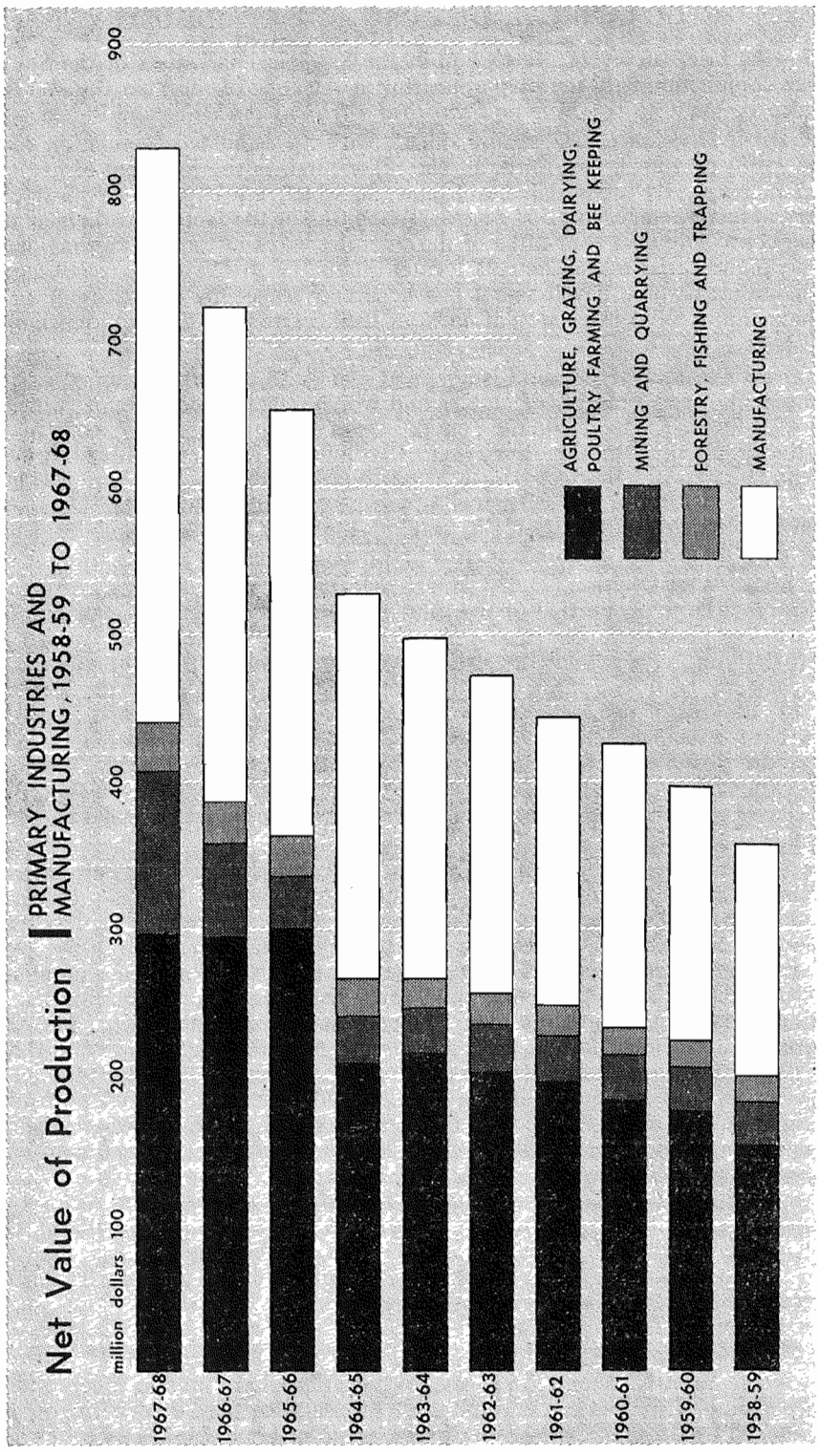
Secondary industry has expanded substantially in recent years and may be expected to expand even more rapidly in future. A major oil refinery, a steel rolling mill, an alumina refinery, a factory for the manufacture of titanium oxide from ilmenite, an iron ore pelletising plant and a blast furnace have been established since 1955. These are among a growing number of factories which rely mainly on the interstate and overseas export of their products and this new trend indicates that dependence primarily on local demand is becoming less serious as an obstacle to development than it has been in the past.

The following table shows net values of production of the various primary industries and of secondary industry during the five years 1963-64 to 1967-68. An effective comparison of their relative importance is provided by the five-yearly averages quoted, as they tend to lessen the effect on the statistics of unusual seasonal or other conditions occurring in individual years.

NET VALUE OF RECORDED PRODUCTION

Industry	1963–64	1964–65	1965–66	1966–67	1967–68	Average of five years
VALUE ($'000)						
Agriculture	79,619	92,800	154,494	153,717	162,043	128,535
Pastoral	123,545	101,069	129,773	126,049	119,231	119,934
Dairying	10,520	12,601	13,031	11,060	11,820	11,807
Poultry farming	1,345	1,589	3,253	3,801	2,492	2,496
Bee keeping	849	519	643	442	219	534
Trapping	434	678	662	758	900	686
Forestry	10,735	11,334	11,965	12,473	13,273	11,956
Fishing and whaling	8,926	13,973	14,478	14,975	20,419	14,554
Mining and quarrying	30,697	32,163	35,192	63,097	110,267	54,283
Total, Primary	266,670	266,726	363,490	386,372	440,663	344,784
Manufacturing	230,511	260,637	288,803	335,788	388,257	300,799
Total, Primary and Manufacturing	497,181	527,363	652,293	722,160	828,920	645,583
PROPORTION OF TOTAL (PER CENT)						
Agriculture	16·01	17·60	23·68	21·29	19·55	19·91
Pastoral	24·85	19·16	19·89	17·45	14·38	18·58
Dairying	2·12	2·39	2·00	1·53	1·43	1·83
Poultry farming	0·27	0·30	0·50	0·53	0·30	0·39
Bee keeping	0·17	0·10	0·10	0·06	0·03	0·08
Trapping	0·09	0·13	0·10	0·10	0·11	0·11
Forestry	2·16	2·15	1·83	1·73	1·60	1·85
Fishing and whaling	1·80	2·65	2·22	2·07	2·46	2·25
Mining and quarrying	6·17	6·10	5·40	8·74	13·30	8·41
Total, Primary	53·64	50·58	55·72	53·50	53·16	53·41
Manufacturing	46·36	49·42	44·28	46·50	46·84	46·59
Total, Primary and Manufacturing	100·00	100·00	100·00	100·00	100·00	100·00

The *Net Value* quoted in the above table represents the return to the producer, after deducting from the gross value the cost of all goods consumed in the process of production and costs of marketing the product. It is the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.


Net Value of Production
PRIMARY INDUSTRIES AND MANUFACTURING, 1958-59 TO 1967-68
million dollars
100
200
300
400
500
600
700
800
900
1967-68
1966-67
1965-66
1964-65
1963-64
1962-63
1961-62
1960-61
1959-60
1958-59
AGRICULTURE, GRAZING, DAIRYING, POULTRY FARMING AND BEE KEEPING
MINING AND QUARRYING
FORESTRY, FISHING AND TRAPPING
MANUFACTURING

GEOGRAPHICAL DISTRIBUTION OF INDUSTRY

The following brief survey of production in the Statistical Divisions of the State should be read in conjunction with the map appearing at the back of the Year Book. Reference should also be made to the *Note on Statistical Divisions* preceding the Index.

The Perth Division (2,072 square miles), with an estimated population of 606,000 (30 June 1968) or almost two-thirds of the State total, is the principal centre of manufacturing activity. Its industrial establishments, which are engaged in most classes of secondary industry, employ 55,564 or over four-fifths of the factory workers of the State. They also contribute over four-fifths of the total net value of factory production. Many of the larger industrial establishments located in the Perth Division are concentrated in the Kwinana area where development has been encouraged by the dredging of a deep-water channel and the construction of harbour facilities to meet the requirements of large-scale projects.

Farm activity for the Division is confined mainly to the production of citrus, pome and stone fruits, eggs, poultry, vegetables and whole milk. Production is principally for consumption within the metropolitan area but small quantities are exported. In addition, most of the State's viticultural industry is carried on in this region. Table grapes, currants, raisins and sultanas are produced for the local market and for export, and wine-making grapes are grown for use in local wineries. A well-established fishing industry operates from the port of Fremantle, the main catch being rock lobsters. Bauxite is mined at Jarrahdale for treatment at an alumina refinery at Kwinana.

The South-West Division (11,030 square miles) is the main dairying area of the State and produces a large proportion of the total output of whole milk and of butter, cheese and condensery products. Pig raising is carried on both separately and as an ancillary activity to dairying. The rearing of cattle for meat production is now of major importance. Apples, pears, stone fruits, potatoes and other vegetables are grown extensively. Timber is one of the main products, being milled over a wide area, and coal, ilmenite and tin are the principal minerals produced. Commercial fishing is centred on Mandurah, Bunbury and Busselton. The factories of the Division, which employ 4,996 workers, include sawmills, butter, cheese and milk-processing plants, meat works, a superphosphate works, a large chemical factory producing titanium oxide pigments and two major electricity generating stations.

The Southern Agricultural, Central Agricultural and Northern Agricultural Divisions, which together cover 86,216 square miles, comprise the principal cereal-growing districts and produce the bulk of the State's wheat, oats and barley crops. The development of clover ley farming over a wide area has led to a remarkable increase in the number of sheep carried on farms in these Divisions and the total, 23·1 million, comprises three-quarters of the State's sheep population. There has been a corresponding rise in wool production which now represents over 75 per cent of the State's clip. The raising of cattle, principally for meat production, has also increased in importance and the number kept for all purposes is now 254,368 or more than 20 per cent of the State total. Tomatoes and other vegetables are grown in the area around Geraldton and citrus fruits in the Chittering area. Dairying, apple and pear growing and potato growing are important in the districts around Denmark, Albany and Mount Barker while large quantities of peas for processing are produced around Mount Barker and Gnowangerup. Whaling and fishing are carried on from Albany, on the south coast, and the important rock lobster-fishing industry on the lower west coast is based on the Abrolhos Islands, Geraldton, Dongara, Jurien Bay, Cervantes and Lancelin Island. Lead has been mined near Northampton for many years and the mining of iron ore, which is being shipped to Japan from Geraldton, commenced at Koolanooka in 1966. Factories, which include flour-mills, superphosphate works, butter factories, sawmills, a woollen mill, a charcoal iron and wood-distillation plant, a fish cannery and a meat works, provide employment for 4,972 workers.

The North-West Division (75,731 square miles) has 1·19 million sheep, representing nearly 4 per cent of the State total, and 23·1 thousand cattle. Tropical agriculture has been developed on the Gascoyne River at Carnarvon where bananas and beans and other

vegetables are grown. An important prawn-fishing industry has been established in the Division, the principal areas being Carnarvon, Exmouth Gulf and Point Samson. Commercial fishermen operate also from Shark Bay.

The Kimberley Division (162,363 square miles), with over half a million cattle, or almost 40 per cent of the State total, and meat works at Wyndham, Derby and Broome is an important source of beef for export from Western Australia to overseas markets. Broome is also the centre of pearl-shell fishing. Culture pearls are being successfully produced at Kuri Bay in Brecknock Harbour, Cygnet Bay in King Sound and at Exmouth Gulf. Iron ore is mined at Cockatoo and Koolan Islands in Yampi Sound. Reference is made on pages 319–20 to agricultural developments at Kununurra on the Ord River and Camballin on the Fitzroy River.

The Eastern Goldfields, Central and Pilbara Divisions covering a total area of 638,508 square miles contain the principal gold and mineral fields of the State and almost all the gold produced in Western Australia comes from this area. Iron ore, which is used for the production of pig-iron at Wundowie in the Darling Range, east of Perth, has been mined since 1950 at Koolyanobbing, east of Bullfinch in the Yilgarn district. Deposits in this area are being mined on a large scale for the supply of ore to the blast furnace at Kwinana and for export. Other large-scale deposits of iron ore in the Pilbara Division are being mined for export or are under development for production. Further reference to these operations will be found on pages 385–6. A plant producing iron ore pellets from iron ore fines commenced operations at Dampier in 1968. Other minerals and ores produced elsewhere in these Divisions include nickel, beryl, felspar, gypsum, pyrites and ores of copper, manganese, silver, tin and tanto-columbite. Although mining is the main industry, these Divisions contribute also to pastoral output, the area containing almost 14 per cent of the sheep and 8 per cent of the cattle in the State. Cereals are grown in the south-western portion of the Eastern Goldfields Division, which produced over 8·3 million bushels of wheat, oats and barley in 1967-68.

Part 1—Primary Production

LAND UTILISATION ON RURAL HOLDINGS

In 1967-68 there were 23,116 rural holdings in the State, comprising 275·3 million acres of land or 44 per cent of the total area of Western Australia.

The total area of rural holdings consisted of 32·8 million acres of cleared land and 242·5 million acres uncleared. Of the cleared land, 8·9 million acres were used for crop, 14·5 million acres were under established pastures, 1·4 million acres were newly cleared during the season and 1·8 million acres were in fallow. The balance of the cleared area, 6·2 million acres, comprised land which was used for grazing or was resting during the season. The uncleared land is mainly pastoral leases held by sheep and cattle stations.

Land development in the post-war period has been stimulated by generally favourable prices for agricultural and pastoral commodities. Special concessions to primary producers under the provisions of the taxation legislation have also contributed to the increased capital investment in primary industry. This development, which has been undertaken principally by established farmers and by the War Service Land Settlement Board, has been aided by the introduction of modern mechanical methods of land clearing. As a result, the area of cleared land on rural holdings has more than doubled, from 14·6 million acres in 1946-47 to 32·8 million acres in 1967-68. In the same period land used for crops has increased from 3·5 million acres to 8·9 million acres and the area under established pastures from 2·1 million to 14·5 million acres. The area in fallow, which was 2·1 million acres in 1946-47, has not varied greatly over the period and in 1967-68 it was 1·8 million acres.

LAND UTILISATION

Season	Cleared land						Active rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres	'000 acres		'000 acres
1963–64	6,706	9,510	1,133	1,712	9,202	28,263	22,770	266,556
1964–65	7,289	10,427	1,120	1,757	8,952	29,545	22,856	268,553
1965–66	8,449	11,382	1,194	1,942	7,931	30,898	22,853	270,054
1966–67	8,558	13,018	1,300	2,023	6,970	31,869	23,181	274,765
1967–68	8,883	14,528	1,357	1,846	6,193	32,806	23,116	275,334

(a) Excludes meadow hay.

LAND UTILISATION IN EACH STATISTICAL DIVISION: 1967–68

Statistical Division	Cleared land						Active rural holdings	
	Used for crop (a)	Under established pasture	Newly cleared, prepared for next season	In fallow	Used for grazing or resting	Total	Number	Area
	acres	acres	acres	acres	acres	acres		acres
Perth	26,268	201,978	9,575	7,135	40,848	285,804	3,955	446,836
South-West	72,042	1,382,997	64,113	17,250	117,841	1,654,243	4,381	2,573,562
Southern Agricultural	1,331,637	4,261,727	339,548	362,140	985,371	7,280,423	4,682	10,321,109
Central Agricultural....	4,144,917	4,606,441	311,059	630,915	2,479,296	12,172,628	5,062	15,494,848
Northern Agricultural	2,651,862	3,261,705	322,759	537,301	2,087,845	8,861,472	3,362	15,905,269
Eastern Goldfields	638,161	809,491	235,774	285,296	471,009	2,439,731	1,082	47,085,874
Central	2,766	2,050	72,100	550	5,163	82,629	157	64,095,942
North-West	1,778	....	69	285	978	3,110	248	41,716,919
Pilbara	2	....	....	....	5	7	58	24,186,165
Kimberley	13,690	1,132	1,584	4,767	4,924	26,097	129	53,507,380
Total	8,883,123	14,527,521	1,356,581	1,845,639	6,193,280	32,806,144	23,116	275,333,904

(a) Excludes meadow hay.

EMPLOYMENT AND POPULATION

The permanent male work force on rural holdings in the State has been reasonably stable since the end of World War 2. This has been due partly to the rapid development of power farming, which is indicated by the rise in the number of farm tractors from 24,985 in 1959 to 35,158 in 1968. The result has been that, in spite of greatly increased production, there has been little change in the permanent male work force which has decreased from 30,356 in 1959 to 29,670 in 1968. Permanent male workers in 1968 consisted of 19,132 owners, lessees, tenants and share farmers, 1,206 farmers' relatives who were not receiving wages and 9,332 paid employees. Full information is not available regarding temporary, casual or seasonal employment and details are excluded from the following table. Female employment is also excluded because of the difficulty in separating domestic from farm activities.

MALE EMPLOYMENT, POPULATION AND TRACTORS ON RURAL HOLDINGS

At 31 March—	Males working permanently full-time on holdings				Population of rural holdings			Farm tractors
	Owners, lessees, tenants and share-farmers	Relatives not receiving wages	Employees, including paid relatives	Total	Males	Females	Persons	
1964	20,548	1,317	8,607	30,472	50,093	41,295	91,388	30,879
1965	20,569	1,232	8,502	30,303	50,353	41,917	92,270	32,028
1966	20,530	1,173	8,506	30,209	50,126	41,581	91,707	32,312
1967	20,215	1,289	8,051	29,555	50,000	41,596	91,596	33,997
1968	19,132	1,206	9,332	29,670	49,956	41,336	91,292	35,158

CLASSIFICATION OF RURAL HOLDINGS

Some of the information from the 1965-66 Agricultural and Pastoral Census was classified by size of principal characteristics (area of holdings, area of established pasture, area of selected crops and numbers of livestock). In addition all holdings were classified according to type of activity. Tables showing this information together with definitions and an outline of methods used have been published by the Commonwealth Bureau of Census and Statistics, Canberra in a series of bulletins, *Classification of Rural Holdings by Size and Type of Activity*, 1965-66.

Selected size classification tables for Western Australia are published elsewhere in this Part and the type of activity classifications for the State are shown below and on pages 330-1.

HOLDINGS CLASSIFIED ACCORDING TO TYPE OF ACTIVITY NUMBER AND AREA USED FOR VARIOUS PURPOSES—SEASON 1965-66

Type of activity	Number of holdings	Total area of holdings	Area used for—				
			Fruit	Crops (excluding fruit)	Fallow	Established pasture	Balance of holding
		acres	acres	acres	acres	acres	acres
Sheep—Cereal grain	6,845	24,673,659	62	5,895,532	1,100,363	6,381,591	11,296,111
Sheep	3,314	159,193,968	2,161	306,015	88,436	2,958,599	155,838,757
Cereal grain	1,940	7,390,845	....	2,033,972	575,235	319,704	4,461,934
Cattle (meat production)	1,224	68,879,492	562	19,842	11,653	559,429	68,288,006
Cattle (milk production)	1,420	659,672	493	9,876	2,219	390,919	256,165
Vineyards	229	15,245	5,431	232	553	2,878	6,151
Fruit (other than vine)	885	154,379	15,430	1,625	1,282	64,417	71,625
Vegetables—Potatoes	307	81,840	882	6,062	843	34,722	39,331
Other and mixed	721	22,791	611	6,226	1,417	2,841	11,696
Poultry	407	17,891	449	1,128	334	3,402	12,578
Pigs	160	41,187	80	3,312	774	10,242	26,779
Other	172	158,071	125	15,319	8,984	40,208	93,435
Multi-purpose	539	815,131	3,266	98,268	14,505	355,760	343,332
Total, classified holdings	18,163	262,104,171	29,552	8,397,409	1,806,598	11,124,712	240,745,900
Unclassified holdings—							
Sub-commercial	3,366	6,071,797	4,966	14,093	26,736	150,985	5,875,017
Unused, special, etc.	1,324	1,878,483	412	3,399	108,891	106,486	1,659,295
Total, all rural holdings	22,853	270,054,451	34,930	8,414,901	1,942,225	11,382,183	248,280,212

HOLDINGS WITH PIG HERDS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965-66

Type of activity	Size of pig herd (numbers)									
	1–4	5–9	10–14	15–19	20–29	30–39	40–49	50–99	100 and over	Total
Sheep—Cereal grain	136	165	195	152	265	210	128	298	82	1,631
Sheep	59	34	36	26	42	34	23	44	6	304
Cereal grain	29	33	30	24	78	48	29	80	35	386
Cattle (meat production)	17	8	7	8	15	6	2	6	3	72
Cattle (milk production)	53	55	54	43	62	52	32	74	15	440
Vineyards	1	....	....	....	....	....	....	....	....	1
Fruit (other than vine)	20	7	3	2	3	2	1	3	1	42
Vegetables—Potatoes	13	1	5	3	4	1	....	1	1	29
Other and mixed	10	2	....	....	1	1	1	....	....	15
Poultry	7	6	....	1	4	3	1	2	3	27
Pigs	....	....	....	....	2	6	8	66	78	160
Other	2	....	....	....	....	....	....	....	....	2
Multi-purpose	18	13	7	8	29	21	16	43	30	185
Total, classified holdings	365	324	337	267	505	384	241	617	254	3,294
Unclassified holdings—										
Sub-commercial	82	48	34	31	28	16	4	....	....	243
Unused, special, etc.	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	447	372	371	298	533	400	245	617	254	3,537

In the first table on page 329, the number and area of rural holdings used for various purposes are shown. Of the 22,853 rural holdings of all types in the State, sheep and cereal grain was the principal activity of 6,845 or 30 per cent of the total. The greatest area was occupied by holdings with sheep as the principal activity, which accounted for 59 per cent of the total area of all holdings, followed by cattle for meat production with 26 per cent.

The second table on page 329 shows, for holdings with pig herds, the size of the herd for each type of activity. Pig raising was associated principally with the activity sheep and cereal grain, with cattle for milk production next in importance.

Of the 9,267 holdings growing wheat for grain, 6,560 or over 71 per cent were combined with sheep as the principal activity, as shown in the following table. Cereal grain was the next most important activity associated with the growing of wheat for grain, accounting for 1,913 or over 71 per cent of the remaining 2,707 holdings.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY AND AREA—SEASON 1965–66

Type of activity	Area of wheat for grain (acres)									
	1–99	100–199	200–299	300–399	400–499	500–699	700–999	1,000–1,999	2,000 and over	Total
Sheep—Cereal grain	403	607	624	709	702	1,224	1,043	1,041	207	6,560
Sheep	371	66	26	10	1	....	1	....	....	475
Cereal grain	40	109	151	163	151	257	357	528	157	1,913
Cattle (meat production)	8	5	....	2	....	....	....	1	....	16
Cattle (milk production)	....	1	....	....	....	....	....	....	....	1
Vineyards	2	....	....	....	....	....	....	....	....	2
Fruit (other than vine)	1	....	....	....	....	....	....	....	....	1
Vegetables—Potatoes	....	....	....	....	....	....	....	....	....	....
Other and mixed	2	....	....	....	....	....	....	....	....	2
Poultry	2	2	....	....	....	....	....	....	....	4
Pigs	10	3	....	1	1	....	....	....	....	15
Other	4	1	2	3	....	....	....	....	....	10
Multi-purpose	56	31	31	17	12	7	13	9	....	176
Total, classified holdings	899	825	834	905	867	1,488	1,414	1,579	364	9,175
Unclassified holdings—										
Sub-commercial	90	2	....	....	....	....	....	....	....	92
Unused, special, etc.	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	989	827	834	905	867	1,488	1,414	1,579	364	9,267

In the following table, holdings with sheep flocks have been classified according to the size of flock for each type of activity.

HOLDINGS WITH SHEEP FLOCKS, CLASSIFIED ACCORDING TO TYPE OF ACTIVITY AND SIZE OF FLOCK—SEASON 1965–66

Type of activity	Size of sheep flock (numbers)									
	1–299	300–499	500–699	700–999	1,000–1,399	1,400–1,999	2,000–2,999	3,000–4,999	5,000 and over	Total
Sheep—Cereal grain	69	227	426	974	1,385	1,578	1,292	633	193	6,777
Sheep	34	192	231	318	381	502	692	436	492	3,278
Cereal grain	189	176	179	221	168	84	32	9	4	1,062
Cattle (meat production)	246	63	50	39	32	21	10	8	1	470
Cattle (milk production)	266	24	6	2	2	....	....	1	....	301
Vineyards	17	....	....	....	....	....	....	....	....	17
Fruit (other than vine)	96	34	17	17	6	3	1	2	....	176
Vegetables—Potatoes	33	5	6	5	1	1	....	....	....	51
Other and mixed	8	2	....	....	....	....	....	....	....	10
Poultry	31	2	....	1	....	1	....	....	....	35
Pigs	49	2	4	4	1	....	....	....	....	60
Other	10	5	6	7	6	5	2	2	....	43
Multi-purpose	84	62	75	66	62	60	40	21	7	477
Total, classified holdings	1,132	794	1,000	1,654	2,044	2,255	2,069	1,112	697	12,757
Unclassified holdings—										
Sub-commercial	720	34	....	....	....	....	....	....	....	754
Unused, special, etc.	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511

Holdings running cattle for milk production are classified in the following table according to size of herd for each type of activity.

HOLDINGS WITH CATTLE (MILK PRODUCTION) HERDS (*a*)
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965–66

Type of activity	Size of cattle herd (milk production) (numbers)									
	1–4	5–9	10–19	20–39	40–59	60–79	80–99	100–149	150 and over	Total
Sheep—Cereal grain	581	43	15	1	2	2	....	....	....	644
Sheep	214	16	11	20	24	10	3	5	1	304
Cereal grain	77	4	3	....	....	....	1	....	....	85
Cattle (meat production)	94	10	7	20	22	29	19	33	14	248
Cattle (milk production)	5	2	15	77	191	342	229	317	242	1,420
Vineyards	2	....	....	....	....	....	....	....	....	2
Fruit (other than vine)	32	7	6	29	22	11	1	5	....	113
Vegetables—Potatoes	10	5	7	28	19	15	11	9	....	104
Other and mixed	7	2	2	1	3	....	....	....	....	15
Poultry	15	1	5	....	1	....	....	....	....	22
Pigs	8	....	....	....	....	....	....	....	....	8
Other	1	....	1	....	....	1	....	1	....	4
Multi-purpose	43	4	6	23	29	32	23	20	7	187
Total, classified holdings	1,089	94	78	199	313	442	287	390	264	3,156
Unclassified holdings—										
Sub-commercial	168	48	58	138	107	7	....	....	....	526
Unused, special, etc.	3	....	....	....	....	....	....	....	....	3
Total, all rural holdings	1,260	142	136	337	420	449	287	390	264	3,685

(*a*) Excludes holdings with no cattle for milk production other than house cows.

Of the 8,304 holdings running cattle for meat production, 3,936 were associated with either sheep or sheep and cereal grain as the principal activity.

HOLDINGS WITH CATTLE (MEAT PRODUCTION) HERDS
ACCORDING TO TYPE OF ACTIVITY AND SIZE OF HERD—SEASON 1965–66

Type of activity	Size of cattle herd (meat production) (numbers)									
	1–9	10–19	20–29	30–49	50–99	100–199	200–299	300–999	1,000 and over	Total
Sheep—Cereal grain	1,053	367	230	255	224	79	21	10	1	2,240
Sheep	368	184	163	285	402	190	49	43	12	1,696
Cereal grain	127	32	10	11	15	3	2	1	....	201
Cattle (meat production)	....	....	10	103	378	347	132	161	93	1,224
Cattle (milk production)	229	184	119	131	120	50	9	11	....	853
Vineyards	13	4	2	5	1	1	....	....	....	26
Fruit (other than vine)	78	42	30	51	42	16	5	1	....	265
Vegetables—Potatoes	29	31	14	30	37	23	5	1	....	170
Other than mixed	15	7	3	10	5	....	....	....	....	40
Poultry	35	13	3	5	2	....	....	....	....	58
Pigs	22	12	10	6	5	1	....	....	....	56
Other	11	1	3	1	....	....	....	....	....	16
Multi-purpose	46	48	47	64	117	74	27	14	1	438
Total, classified holdings	2,026	925	644	957	1,348	784	250	242	107	7,283
Unclassified holdings—										
Sub-commercial	491	249	147	119	....	6	4	5	....	1,021
Unused, special, etc.	....	....	....	....	....	....	....	....	....	....
Total, all rural holdings	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304

MACHINERY

Mechanisation continues to be a feature of farming in Western Australia and the following table shows the principal items of machinery on rural holdings at 31 March in each of the years from 1964 to 1968. The most significant change in machinery on rural holdings has occurred in relation to tractors. Not only have the numbers of tractors continued to increase but the trend is towards tractors of larger horsepower. Between 31 March 1963 and 31 March 1966 the number of wheeled tractors with a maximum belt horsepower of over 56 hp rose from 2,255 to 4,905, an increase of well over 100 per cent.

MACHINERY ON RURAL HOLDINGS

Type	At 31 March—				
	1964	1965	1966	1967	1968
Cultivating machines—					
Mouldboard ploughs—					
Trailing type	3,359	(a)	(a)	2,755	(a)
Tractor-mounted type	2,192	(a)	(a)	1,787	(a)
Disc implements (including disc ploughs, disc cultivators and disc harrows)—					
Trailing type	17,207	(a)	(a)	17,911	(a)
Tractor-mounted type	6,054	(a)	(a)	3,848	(a)
Tine implements—					
Chisel ploughs, scarifiers, cultivators, rippers—					
Trailing type	9,710	(a)	(a)	11,789	(a)
Tractor-mounted type	4,676	(a)	(a)	4,184	(a)
Tine harrows—Number of sections—					
Trailing type	35,232	(a)	(a)	41,340	(a)
Tractor-mounted type	5,657	(a)	(a)	3,308	(a)
Rotary hoes—					
Self-contained power unit	1,515	1,579	1,647	1,823	1,793
Tractor-mounted and trailing types	1,249	1,406	1,539	1,513	1,517
Seeding and fertilising machines—					
Grain drills—					
Combine type	13,198	13,496	13,593	13,628	13,942
Other types	4,473	4,894	4,752	4,192	4,315
Fertiliser distributors and broadcasters	8,873	8,941	9,159	9,540	10,086
Maize and cotton planters	(a)	74	71	69	73
Harvesting machines—					
Grain and seed harvesters (b)	11,069	11,185	11,398	11,072	11,666
Mowers—					
Power-drive	6,908	7,382	7,343	7,581	7,327
Ground-drive	(a)	752	(a)	(a)	416
Hay rakes—					
Side-delivery	(a)	4,683	(a)	(a)	4,945
Dump	(a)	961	(a)	(a)	684
Buck	(a)	368	(a)	(a)	314
Pick-up balers (including roto-balers)	3,216	3,432	3,461	3,624	3,845
Forage harvesters	534	530	494	547	558
Potato diggers	(a)	383	(a)	(a)	455
Tractors—					
Wheeled	(a)	(a)	28,706	(a)	(a)
Crawler	(a)	(a)	3,606	(a)	(a)
Total	30,879	32,028	32,312	33,997	35,158
Miscellaneous machines—					
Hammer mills (including roughage mills)	(a)	1,639	(a)	(a)	1,921
Milking machine units	10,157	10,055	9,780	9,664	9,317
Shearing machine stands	20,293	21,517	22,486	23,431	24,799

(a) Not available. (b) Includes headers but excludes clover seed harvesters.

VALUE OF PRODUCTION

For primary production the *gross value* is based on the wholesale price realised ' at the principal market '. Where primary products are consumed at the place of production or where they become raw material for secondary industry within the State, these points of consumption are taken as the ' principal market '. *Net value* represents the return to the producer after the cost of all goods consumed in the process of production and the costs of marketing the product have been deducted from the gross value. It is consequently the sum available for payment of wages, interest, rent, depreciation, other overhead costs and for the producer's own income.

The following table shows the net values of production of the various primary industries in 1967-68. The ' *local value* ' which is quoted is the value at the source of production and is obtained by deducting marketing costs from the gross value. Marketing costs comprise freight, cost of containers, commission, and other charges incurred in marketing. Gross values provide a reliable measure of the value of production of any particular item or industry but net value of primary production should be used when comparing or combining values for primary industries with those for secondary industry.

PRIMARY INDUSTRIES—VALUE OF PRODUCTION: 1967-68
($'000)

Industry	GROSS VALUE (based on principal market prices)	Marketing costs	LOCAL VALUE (as at source of production)	Cost of goods consumed in process of production	NET VALUE
Agriculture	234,020	34,702	199,317	37,275	162,043
Pastoral	158,754	13,229	145,525	26,295	119,231
Dairying	24,120	1,294	22,826	11,007	11,820
Poultry farming	11,125	537	10,588	8,097	2,492
Bee keeping	240	21	219	(a)	219
Trapping	1,236	336	900	(a)	900
Forestry	14,076	803	13,273	(a)	13,273
Fishing and whaling	21,954	148	21,805	1,386	20,419
Mining and quarrying	157,545	23,226	134,319	24,052	110,267
Total	623,069	74,295	548,774	108,111	440,663

(a) Not available.

Gross values of the principal items are shown in the next table for each of the years 1963-64 to 1967-68.

PRIMARY PRODUCTION—GROSS VALUES OF PRINCIPAL ITEMS
($'000)

Industry and commodity	1963-64	1964-65	1965-66	1966-67	1967-68
Agriculture—					
Wheat	74,389	88,557	153,050	153,157	170,102
Oats	13,093	9,888	18,403	15,800	14,106
Barley	4,375	3,940	7,297	7,476	7,690
Hay (all kinds)	8,707	9,287	8,457	8,985	9,557
Pasture seed (a)	3,108	2,677	4,247	4,180	4,289
Cotton	108	1,065	1,872	2,393	1,892
Vegetables	8,986	11,059	11,314	12,712	12,700
Fruit, orchard (b)	7,984	10,323	8,834	11,216	11,102
Vine fruits	1,343	1,395	1,173	1,025	1,092
Nursery products (c)	777	805	925	894	910
Pastoral—					
Wool (shorn and dead) (d)	115,422	92,668	114,419	120,742	115,976
Livestock slaughtered (e)	33,878	34,720	44,110	41,577	43,345
Dairying—					
Whole milk (f)	14,333	15,819	16,220	15,087	15,335
Livestock slaughtered (g)	5,949	6,752	6,674	6,755	8,767
Poultry farming—					
Eggs (h)	3,719	3,884	4,735	4,784	5,064
Poultry slaughtered	*2,661	3,139	3,666	4,922	5,501
Bee keeping (i)	*895	562	701	484	240
Trapping	632	775	836	986	1,236
Forestry	11,462	12,093	12,731	13,300	14,076
Fishing—					
Prawns	459	592	1,053	1,778	1,566
Rock lobsters	6,889	11,192	11,388	11,344	16,863
Scale fish	1,375	1,300	1,256	1,013	1,100
Pearls and pearl-shell (j)	226	183	259	292	359
Mining and quarrying—					
Gold (k)	26,458	23,466	22,285	23,243	21,618
Asbestos	2,406	2,212	2,032	2,434	3
Coal	3,970	4,679	4,410	4,562	4,765
Ilmenite concentrates	1,854	2,812	4,332	4,802	5,227
Iron ore	2,691	2,771	4,662	33,772	84,358
Manganese ore	864	1,416	2,106	4,091	4,466
Pyritic ore and concentrates	974	1,109	1,048	1,070	1,113
Quarry products	5,183	6,550	7,883	8,881	8,660
Tin concentrate	816	1,241	1,559	2,072	2,198
Zircon concentrates	261	435	687	899	1,193

(a) Comprises clover, medics, lupins, rye grass and other pasture seeds. (b) Includes plantation and berry fruits. (c) Value of seedlings, cut flowers, bulbs, trees, etc. produced. (d) The value of fellmongered wool and wool exported on skins is included in the value of livestock slaughtered which has been computed from prices of livestock 'on hoof' and therefore includes a value for wool on skins. (e) Comprises cattle, sheep and lambs. (f) Includes Commonwealth Government subsidy. (g) Comprises calves and pigs. (h) Excludes value of non-commercial production. (i) Excludes value of production of bee keepers with less than five hives. (j) Excludes culture pearls. (k) Includes net subsidy payments by the Commonwealth Government and amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. * Revised.

SUMMARY OF AUSTRALIAN STATISTICS

The following table contains a selection of the principal statistics of primary production in each of the Australian States for 1967–68.

PRINCIPAL STATISTICS OF PRIMARY PRODUCTION—AUSTRALIA: 1967–68

Particulars	Unit	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	Australia (a)
Rural holdings—								
Number	....	76,225	72,802	43,694	29,058	23,116	10,631	256,027
Area	'000 acres	171,767	39,564	380,990	160,765	275,334	6,579	1,209,737
Principal crops—								
Wheat for grain—								
Area	'000 acres	8,215	3,224	1,477	2,864	6,647	12	22,441
Production	'000 bush	87,323	28,317	27,417	26,899	106,975	316	277,289
Oats for grain—								
Area	'000 acres	907	723	31	525	1,158	35	3,380
Production	'000 bush	8,235	6,859	450	3,299	19,759	1,014	39,628
Barley for grain—								
Area	'000 acres	367	305	342	1,157	416	24	2,611
Production	'000 bush	4,834	2,708	8,965	12,379	7,027	884	36,798
Hay—all types—								
Area	'000 acres	586	1,165	119	429	318	179	2,800
Production	'000 tons	806	1,556	295	418	421	309	3,811
Pasture seed	'000 lb	6,181	137	2,650	3,977	20,432	602	35,538
Cotton—								
Area	'000 acres	53	....	(b) 12	....	12	....	77
Production	'000 lb	170,064	....	(c) 18,718	....	25,954	....	214,736
Onions—								
Area	acre	1,116	3,617	2,951	1,682	340	146	(d) 9,852
Production	ton	9,535	11,339	14,882	16,635	4,633	1,462	(d) 58,486
Potatoes—								
Area	acre	24,334	40,329	17,347	6,527	6,149	10,960	(d) 105,668
Production	ton	122,795	215,941	106,429	63,331	70,469	79,058	(d) 658,112
Other vegetables—								
Area	acre	42,061	49,133	45,550	9,256	8,980	22,313	177,634
Apples—								
Area	acre	18,692	21,074	13,438	5,900	15,078	18,378	92,591
Production	'000 bush	3,287	3,875	1,071	1,378	2,060	7,943	19,615
Oranges—								
Area	acre	27,958	6,285	3,451	17,458	4,635	....	59,830
Production	'000 bush	5,165	1,121	833	2,243	482	....	9,846
Other fruit—								
Area	acre	49,148	43,799	34,502	21,755	5,885	3,384	158,534
Vineyards—								
Area	acre	22,155	48,725	3,400	58,129	7,665	....	140,074
Grapes for table	ton	7,783	13,236	5,009	1,031	2,177	....	29,236
Wine made	'000 gal	8,350	5,180	31	30,130	616	....	44,307
Currants	ton	585	3,166	....	3,112	1,668	....	8,531
Sultanas and raisins	ton	12,463	59,222	....	5,200	40	....	76,925
Livestock numbers, 31 March 1968—								
Sheep and lambs	'000	67,786	27,909	19,948	16,405	30,161	4,428	166,912
Cattle	'000	4,555	3,474	7,361	695	1,427	564	19,218
Pigs	'000	645	377	520	242	183	87	2,056
Livestock slaughtered for human consumption—								
Sheep	'000	5,964·7	9,183·5	1,961·9	2,497·4	2,008·5	600·1	22,268·9
Lambs	'000	6,133·8	5,815·2	529·3	1,521·5	1,164·0	524·9	15,739·5
Cattle	'000	1,033·2	1,088·1	1,343·3	166·3	308·5	122·9	4,144·7
Calves	'000	413·6	624·5	320·4	78·4	24·4	47·9	1,510·5
Pigs	'000	908·5	699·8	734·6	309·8	242·2	143·0	3,049·0
Wool production	'000 lb	650,420	332,427	226,822	218,951	300,229	38,308	1,769,507
Whole milk production—								
All purposes	'000 gal	310,056	734,203	217,202	88,822	55,411	90,793	1,497,484
Fisheries production—								
Fish—live weight	'000 lb	33,005	17,016	10,435	18,285	16,737	8,767	104,851
Crustaceans— gross weight	'000 lb	357	1,531	56	5,264	22,041	4,031	33,280
Gold : mine production (e)	fine oz	8,435	10,792	82,854	38	516,205	36,497	786,432
Iron ore (e)	'000 tons	....	....	....	5	18,828	826	25,929
Gross value of production—								
Agriculture	$'000	328,564	221,960	308,922	127,288	234,020	47,309	1,268,992
Pastoral	$'000	431,411	355,318	273,438	129,504	158,754	30,821	1,395,231
Dairying	$'000	157,733	181,541	75,996	37,163	24,120	26,862	504,050
Poultry farming	$'000	73,424	50,134	20,455	11,626	11,125	5,143	172,488
Bee keeping	$'000	2,013	1,182	409	641	240	123	4,627
Trapping	$'000	4,580	3,621	1,132	952	1,236	478	12,051
Forestry	$'000	35,140	27,845	17,683	8,128	14,076	17,209	120,725
Fishing and whaling	$'000	12,028	5,902	7,319	6,993	21,954	4,707	59,010
Mining and quarrying (f)	$'000	275,929	57,339	140,707	40,449	134,319	34,688	703,834

(a) Includes Northern Territory and Australian Capital Territory except where indicated; see footnote (d). (b) Sown 1966–67. (c) Harvested from crop sown in 1966–67. (d) Incomplete. Excludes Northern Territory and/or Australian Capital Territory. (e) Year, 1968. (f) Local value. For definition, see letterpress at the foot of page 332.

SEASONAL CALENDAR

The following calendar is intended to show the main periods when principal agricultural and pastoral activities are carried out in Western Australia. Operations are generally confined to the periods shown but are subject to variation according to such factors as geographical location within the State, the variety of seed sown (or trees and vines planted) and exceptional seasonal conditions.

SEASONAL CALENDAR

Item	Period	
	Sowing or planting	Harvesting
Pastures—		
Clovers	April to June	December to April
Medics	April to June	December to April
Grain—		
Wheat	May to June	November to January
Oats	April to June	November to December
Barley	April to June	November to December
Rice—		
Wet season crop	November to December	May to June
Dry season crop	May	October
Rye	April to June	November to December
Hay—		
Wheaten	May to June	October to November
Oaten	May to August	October to November
Cotton	November to February	May to October
Linseed	May to June	December to January
Vegetables—		
Beans, Runner—		
Carnarvon area	March to September	May to November
Perth Division	August to March	November to June
Green Peas—		
For processing	May to September	October to December
Fresh	May to October	August to December
Potatoes—		
Early planting—		
Perth and South-West	June to July	October to November
Mid-season planting—		
Perth, South-West and Southern Agricultural	July to November	November to March
Late planting—		
South-West and Southern Agricultural	November to February	February to May
Onions	June to August	December to March
Tomatoes—		
Carnarvon and Geraldton areas	February to April	May to November
Other areas	June to December	October to May
Fruit—		
Apples	June to August	February to May
Apricots	July	December to January
Bananas	September	September to May
Lemons	July to August	July to June
Mandarins	July to August	May to September
Nectarines	July	January to February
Olives	July to August	March to April
Oranges, Navel	July to August	May to September
Oranges, Valencia	July to August	August to February
Peaches	July	December to February
Pears	June to July	January to March
Plums	June to July	December to March
Grapes—		
For table use	June to September	January to April
For wine making	June to September	February to April
For drying	June to September	February to March
Shearing and lambing—		
Shearing—		
Pastoral areas	March to August	
Agricultural areas	February to November	
Lambing—		
Pastoral areas	April to July	
Agricultural areas	April to September	

BUSHEL WEIGHTS

The production of cereals, fruit and certain other commodities is generally recorded in bushels. While the weight of a bushel varies according to the nature of the product, it is also subject to considerable variation on account of such factors as method of pack-

ing and size and variety within each kind of product. The average bushel equivalent weights set out below may be used to convert production to pounds weight avoirdupois.

Product	Weight per bushel	Product	Weight per bushel	Product	Weight per bushel
	lb		lb		lb
Apples	42	Linseed	56	Peaches	45
Apricots	48	Loquats	45	Pears	45
Bananas	56	Maize	56	Peas, Field	60
Barley	50	Mandarins	48	Plums	58
Cherries	48	Nectarines	50	Quinces	42
Clover Seed	60	Oats	40	Rice	42
Figs	44	Olives	56	Rye	60
Grapefruit	42	Oranges	48	Tomatoes	44
Lemons	48	Passion Fruit	34	Wheat	60

AGRICULTURE

Wheat

Wheat has been grown from the earliest years of settlement and a brief synopsis of the development of production is given in the *Western Australian Year Book*, No. 7-1968 and earlier issues. By 1967, the area of land sown to wheat had increased to 6·6 million acres from which a record harvest of 107·0 million bushels was obtained for an average yield of 16·1 bushels per acre.

Mechanisation has been of great importance in the growth of wheat farming in Western Australia owing to the relatively low yield per acre obtained.

Most of Western Australia's wheat production is exported as grain and flour and in the following table the fluctuations which have occurred in exports since 1910 are shown, together with figures giving the estimated total wheat equivalent. The United Kingdom has been the most consistent purchaser of the State's wheat, but since 1961-62 China (mainland) and Japan have been the most important customers and in 1967-68 they took 45·4 million and 14·3 million bushels, respectively, their purchases together accounting for 68 per cent of the State's total wheat exports. In that year other principal buyers, in order of importance, were India, the United Kingdom, and Singapore. In the same year principal customers for flour were Ceylon, the Trucial States, Indonesia and Qatar. Further details of exports appear in Chapter IX, Part 1.

EXPORTS OF WHEAT AND FLOUR

Year	Wheat	Flour (*a*)	Estimated total wheat equivalent
	bushels	short tons (*b*)	bushels
1910	2,014,552	2,821	2,147,139
1919–20	9,151,125	129,250	15,225,875
1929–30	24,953,238	69,070	28,199,528
1939–40	15,330,423	91,667	19,633,772
1949–50	21,510,390	115,814	26,953,648
1959–60	36,713,316	87,851	40,842,313
1963–64	55,021,794	69,090	58,269,024
1964–65	40,507,154	92,402	44,850,048
1965–66	69,371,600	54,157	71,916,979
1966–67	84,980,233	38,365	86,783,388
1967–68	87,199,317	44,550	89,293,167

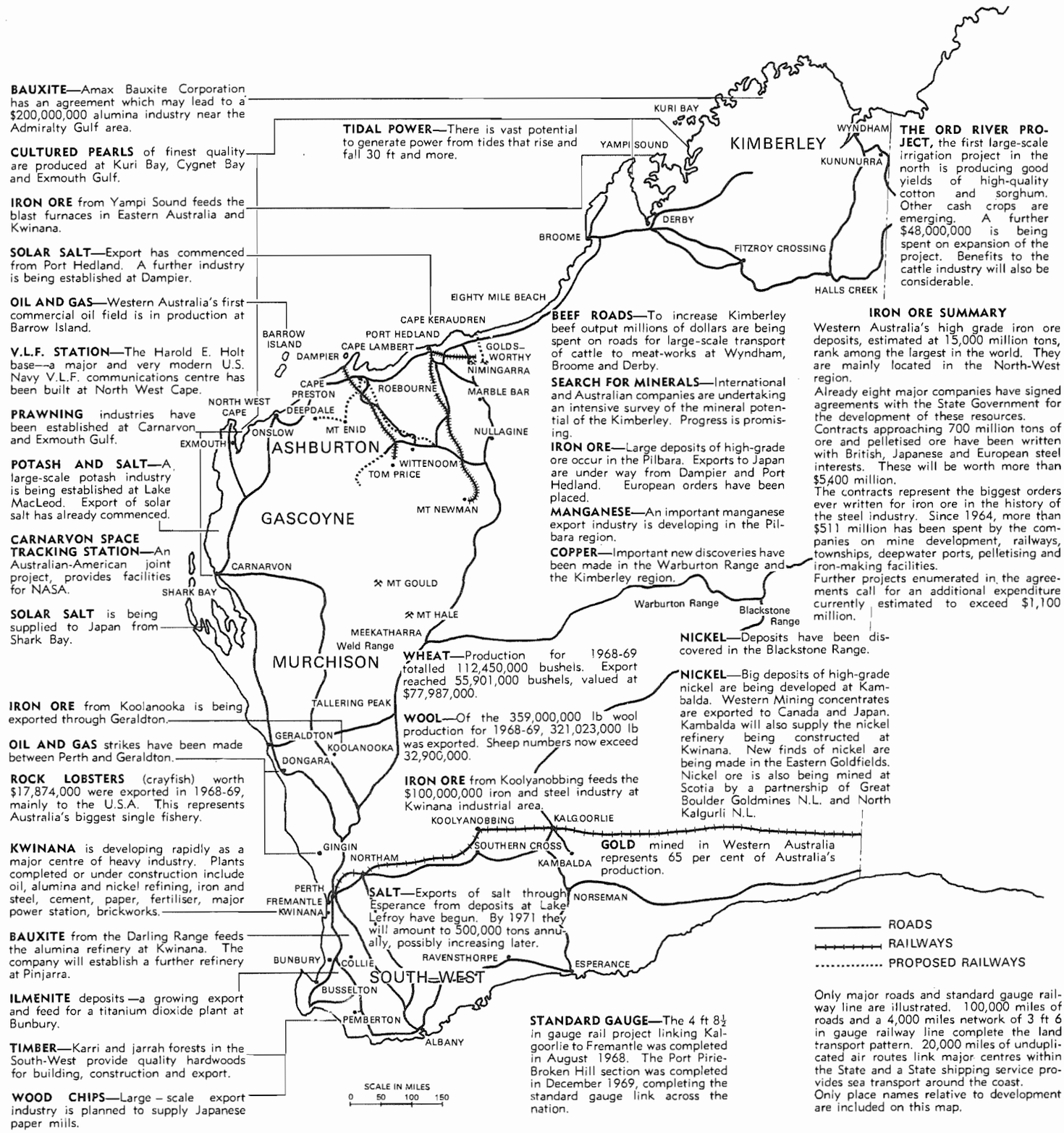
(*a*) Ships' stores are excluded from figures for 1959–60 and subsequent years. (*b*) Short ton = 2,000 lb.

WESTERN AUSTRALIA

AREAS OF CURRENT DEVELOPMENT

AT DECEMBER 1969

(PREPARED BY THE WESTERN AUSTRALIAN DEPARTMENT OF INDUSTRIAL DEVELOPMENT)



BAUXITE—Amax Bauxite Corporation has an agreement which may lead to a $200,000,000 alumina industry near the Admiralty Gulf area.

CULTURED PEARLS of finest quality are produced at Kuri Bay, Cygnet Bay and Exmouth Gulf.

IRON ORE from Yampi Sound feeds the blast furnaces in Eastern Australia and Kwinana.

SOLAR SALT—Export has commenced from Port Hedland. A further industry is being established at Dampier.

OIL AND GAS—Western Australia's first commercial oil field is in production at Barrow Island.

V.L.F. STATION—The Harold E. Holt base—a major and very modern U.S. Navy V.L.F. communications centre has been built at North West Cape.

PRAWNING industries have been established at Carnarvon and Exmouth Gulf.

POTASH AND SALT—A large-scale potash industry is being established at Lake MacLeod. Export of solar salt has already commenced.

CARNARVON SPACE TRACKING STATION—An Australian-American joint project, provides facilities for NASA.

SOLAR SALT is being supplied to Japan from Shark Bay.

IRON ORE from Koolanooka is being exported through Geraldton.

OIL AND GAS strikes have been made between Perth and Geraldton.

ROCK LOBSTERS (crayfish) worth $17,874,000 were exported in 1968-69, mainly to the U.S.A. This represents Australia's biggest single fishery.

KWINANA is developing rapidly as a major centre of heavy industry. Plants completed or under construction include oil, alumina and nickel refining, iron and steel, cement, paper, fertiliser, major power station, brickworks.

BAUXITE from the Darling Range feeds the alumina refinery at Kwinana. The company will establish a further refinery at Pinjarra.

ILMENITE deposits—a growing export and feed for a titanium dioxide plant at Bunbury.

TIMBER—Karri and jarrah forests in the South-West provide quality hardwoods for building, construction and export.

WOOD CHIPS—Large-scale export industry is planned to supply Japanese paper mills.

TIDAL POWER—There is vast potential to generate power from tides that rise and fall 30 ft and more.

BEEF ROADS—To increase Kimberley beef output millions of dollars are being spent on roads for large-scale transport of cattle to meat-works at Wyndham, Broome and Derby.

SEARCH FOR MINERALS—International and Australian companies are undertaking an intensive survey of the mineral potential of the Kimberley. Progress is promising.

IRON ORE—Large deposits of high-grade ore occur in the Pilbara. Exports to Japan are under way from Dampier and Port Hedland. European orders have been placed.

MANGANESE—An important manganese export industry is developing in the Pilbara region.

COPPER—Important new discoveries have been made in the Warburton Range and the Kimberley region.

WHEAT—Production for 1968-69 totalled 112,450,000 bushels. Export reached 55,901,000 bushels, valued at $77,987,000.

WOOL—Of the 359,000,000 lb wool production for 1968-69, 321,023,000 lb was exported. Sheep numbers now exceed 32,900,000.

IRON ORE from Koolyanobbing feeds the $100,000,000 iron and steel industry at Kwinana industrial area.

SALT—Exports of salt through Esperance from deposits at Lake Lefroy have begun. By 1971 they will amount to 500,000 tons annually, possibly increasing later.

STANDARD GAUGE—The 4 ft 8½ in gauge rail project linking Kalgoorlie to Fremantle was completed in August 1968. The Port Pirie-Broken Hill section was completed in December 1969, completing the standard gauge link across the nation.

THE ORD RIVER PROJECT, the first large-scale irrigation project in the north is producing good yields of high-quality cotton and sorghum. Other cash crops are emerging. A further $48,000,000 is being spent on expansion of the project. Benefits to the cattle industry will also be considerable.

IRON ORE SUMMARY

Western Australia's high grade iron ore deposits, estimated at 15,000 million tons, rank among the largest in the world. They are mainly located in the North-West region.

Already eight major companies have signed agreements with the State Government for the development of these resources.

Contracts approaching 700 million tons of ore and pelletised ore have been written with British, Japanese and European steel interests. These will be worth more than $5,400 million.

The contracts represent the biggest orders ever written for iron ore in the history of the steel industry. Since 1964, more than $511 million has been spent by the companies on mine development, railways, townships, deepwater ports, pelletising and iron-making facilities.

Further projects enumerated in the agreements call for an additional expenditure currently estimated to exceed $1,100 million.

NICKEL—Deposits have been discovered in the Blackstone Range.

NICKEL—Big deposits of high-grade nickel are being developed at Kambalda. Western Mining concentrates are exported to Canada and Japan. Kambalda will also supply the nickel refinery being constructed at Kwinana. New finds of nickel are being made in the Eastern Goldfields. Nickel ore is also being mined at Scotia by a partnership of Great Boulder Goldmines N.L. and North Kalgurli N.L.

GOLD mined in Western Australia represents 65 per cent of Australia's production.

——— ROADS

+++++++ RAILWAYS

..... PROPOSED RAILWAYS

Only major roads and standard gauge railway line are illustrated. 100,000 miles of roads and a 4,000 miles network of 3 ft 6 in gauge railway line complete the land transport pattern. 20,000 miles of unduplicated air routes link major centres within the State and a State shipping service provides sea transport around the coast.

Only place names relative to development are included on this map.

The next table gives details of areas sown and wheat produced since 1900.

WHEAT FOR GRAIN—AREA AND PRODUCTION

Season	Area sown	Production		
		Total	Average yield per acre	Gross value
	acres	bushels	bushels	$
1900–01	74,308	774,653	10·4	309,862
1910–11	581,862	5,897,540	10·1	2,162,432
1920–21	1,275,675	12,248,080	9·6	11,023,272
1930–31	3,955,763	53,504,149	13·5	12,201,176
1940–41	2,625,401	21,060,000	8·0	8,647,906
1950–51	3,185,389	49,900,000	15·7	65,328,246
1960–61	4,021,225	63,900,000	15·9	92,290,238
1963–64	4,640,434	52,340,000	11·3	74,388,786
1964–65	5,151,267	63,071,000	12·2	88,556,922
1965–66	6,149,727	102,156,000	16·6	153,049,650
1966–67	6,346,613	103,195,000	16·3	153,157,379
1967–68	6,647,095	106,975,000	16·1	170,101,782

The rapid increase in the production and export of wheat between 1910 and 1920 caused problems of transport and storage, and proposals for the bulk handling of the grain led to the formation of a company for this purpose in 1920. This original undertaking was wound up before commencing operations because the technical difficulties then appeared too great and the saving in handling costs problematical. In 1930, however, the idea of handling wheat in bulk was revived and a cheaper method was tested with storage bins at five railway sidings in the Wyalkatchem area during the 1931-32 season. The experiment was successful and despite some opposition to the scheme, the legislature passed the Bulk Handling Act in 1935 to regulate the handling of wheat in bulk. Under the provisions of this Act, an incorporated co-operative company (Co-operative Bulk Handling Limited) was granted the sole right of handling and arranging transport of wheat in bulk in the State. The company, which was formed in 1933 and had taken over the five experimental bulk facilities, progressively extended bulk handling services to 300 country centres. These services include facilities at various centres not serviced by rail transport.

In addition, Co-operative Bulk Handling Limited provided and operates transfer depots for handling grain from narrow gauge to standard gauge railway wagons at Merredin, Northam and Midland as well as grain terminals for shipping at the ports of Geraldton, Fremantle, Bunbury, Albany and Esperance. At 30 September 1969 total permanent storage in the country was 97 million bushels and at the ports 32 million bushels.

The first stage has been completed of a modern deep-draft bulk loading terminal at Kwinana for Co-operative Bulk Handling Limited. This involved the construction of a horizontal storage unit of 9·8 million bushels capacity and wheat receivals commenced on 1 December 1969. When completed, the terminal will have a capacity of 50 million bushels and be capable of loading at a rate of 4,000 tons an hour.

The Australian Wheat Board is the sole authority for the marketing of wheat within Australia and of wheat and flour for export. It derives its authority from the provisions of the Wheat Stabilization Plan 1968-69 to 1974-75 established under joint Commonwealth and State legislation to replace similar legislation which expired after the marketing of the 1967–68 crop. The principal object of the Plan is to ensure that growers receive a satisfactory income from their wheat and this is achieved by a guaranteed return based on an export price as determined and applicable on up to 200 million bushels of wheat exported each season from Australia. This required the establishment of a fund by levying under authority of the *Wheat Export Charge Act* 1968 (Commonwealth), a tax on exports for which a price in excess of the guaranteed price is received. Should the price

obtained fall below the guaranteed price it is provided that the difference shall be paid from the fund or, if that source is exhausted, by the Commonwealth Government. A further provision with a stabilising effect on the industry fixes the price at which wheat for home consumption may be sold.

By virtue of the *Wheat Industry Stabilization Act* 1968 (Commonwealth) and of the *Bulk Handling Act, 1967*, Co-operative Bulk Handling Limited acts as the licensed receiver for the Australian Wheat Board and handles all wheat produced for marketing in Western Australia.

Under the provisions of the *Wheat Tax Act* 1957-1966 (Commonwealth), a levy of ¼c per bushel is made on wheat delivered to the Australian Wheat Board. This money, contributed by the growers, is spent by the Wheat Industry Research Council and State Wheat Research Committees set up under the provisions of the *Wheat Research Act* 1957. The Commonwealth Government has undertaken to supply additional funds, with a maximum of $1 for every $1 of growers' contributions.

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF HOLDING—SEASON 1965-66

Size of holding (acres)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
1- 49	11	....	....	....	....	....	....	....	....	11	3,915
50- 99	11	....	....	....	....	....	....	....	....	11	638
100- 149	15	....	....	....	....	....	....	....	....	15	661
150- 199	12	2	....	....	....	....	....	....	....	14	590
200- 299	21	11	1	....	....	....	....	....	....	33	1,058
300- 399	21	9	2	1	....	....	....	....	....	33	837
400- 499	21	9	3	1	1	....	....	....	....	35	632
500- 599	22	17	7	1	2	2	....	....	....	51	523
600- 699	32	16	12	4	....	2	....	....	....	66	516
700- 799	30	21	9	6	2	1	....	....	....	69	391
800- 899	39	24	23	12	3	6	1	....	....	108	378
900- 999	39	40	35	29	13	7	....	....	....	163	408
1,000-1,399	141	143	142	136	68	44	15	1	....	690	1,501
1,400-1,999	177	177	176	190	219	308	102	14	....	1,363	2,082
2,000-2,999	215	183	213	257	302	562	475	153	2	2,362	3,148
3,000-3,999	97	97	118	144	132	294	348	345	9	1,584	2,003
4,000-4,999	44	43	46	73	64	145	249	403	18	1,085	1,303
5,000-9,999	34	31	41	44	57	112	196	578	203	1,296	1,435
10,000 and over	7	4	6	7	4	5	28	85	132	278	834
Total	989	827	834	905	867	1,488	1,414	1,579	364	9,267	22,853

HOLDINGS GROWING WHEAT FOR GRAIN, CLASSIFIED ACCORDING TO ACREAGE SOWN AND SIZE OF SHEEP FLOCK—SEASON 1965-66

Size of sheep flock (number)	Area of wheat for grain (acres)										Total, all rural holdings
	1-99	100-199	200-299	300-399	400-499	500-699	700-999	1,000-1,999	2,000 and over	Total	
Nil	109	109	146	122	117	135	122	111	28	999	9,342
1- 49	17	2	2	4	2	2	3	1	....	33	700
50- 99	13	4	3	5	2	4	2	7	....	40	291
100- 199	27	11	12	10	6	11	10	6	1	94	444
200- 299	28	22	12	18	11	19	11	12	2	135	417
300- 399	20	15	27	28	15	23	26	17	1	172	413
400- 499	33	32	30	38	24	33	21	16	....	227	415
500- 699	60	59	77	85	76	123	91	51	....	622	1,000
700- 999	83	83	91	133	153	284	227	139	10	1,203	1,654
1,000- 1,399	119	123	98	133	154	337	306	271	29	1,570	2,044
1,400- 1,999	137	126	143	143	154	288	284	376	47	1,698	2,255
2,000- 2,999	187	148	115	108	103	146	207	338	94	1,446	2,069
3,000- 4,999	112	72	54	57	44	65	78	186	88	756	1,112
5,000- 9,999	42	19	23	20	5	15	23	44	51	242	491
10,000-19,999	1	2	1	1	1	3	2	4	8	23	166
20,000-49,999	1	....	....	....	....	....	1	....	5	7	39
50,000 and over	....	....	....	....	....	....	....	....	....	....	1
Total	989	827	834	905	867	1,488	1,414	1,579	364	9,267	22,853

Wool and Wheat—Annual Production, 1901 to 1967-68
WOOL
(Comprising shorn, dead and fellmongered wool)
million lb
250
200
150
100
50
1905
1910
1915
1920
1925
1930
1935
1940
1945
1950-51
1955-56
1960-61
1965-66
WHEAT
million bushels
100
75
50
25
1910-11
1915-16
1920-21
1925-26
1930-31
1935-36
1940-41
1945-46
1950-51
1955-56
1960-61
1965-66

In the tables on page 338, holdings growing wheat for grain in 1965-66, in size groups of the acreage sown, are classified according to the size of the holding and the size of the sheep flock on the holding. Of the 22,853 rural holdings of all types in the State, wheat for grain was grown on 9,267. Holdings of between 1,000 and 5,000 acres accounted for 76 per cent of this number and holdings which sowed between 200 and 1,000 acres represented 59 per cent. Of the holdings growing wheat for grain all but 999 carried sheep and 55 per cent had flocks of between 500 and 2,000 sheep.

The principal varieties of wheat sown in each of the seasons 1963-64 to 1967-68 are shown in the following table.

AREAS SOWN TO INDIVIDUAL VARIETIES OF WHEAT (*a*)

Variety	1963–64		1964–65		1965–66		1966–67		1967–68	
	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total	Area (acres)	Per cent of total
Bencubbin	249,557	5·3	200,305	3·8	178,555	2·9	139,896	2·2	150,864	2·3
Bungulla	387,339	8·3	403,361	7·8	394,811	6·4	284,746	4·5	201,377	3·0
Emblem	....	....	72	....	940	....	9,463	0·1	41,354	0·6
Falcon	3,902	0·1	18,949	0·4	72,000	1·2	326,822	5·1	762,920	11·4
Gabo	1,804,027	38·6	1,557,750	30·0	1,137,865	18·4	550,179	8·6	314,893	4·7
Gamenya	35,472	0·8	433,601	8·3	1,545,590	24·9	2,462,814	38·5	2,761,020	41·3
Gamut	....	....	....	....	2,646	....	19,401	0·3	97,032	1·5
Heron	21,097	0·5	54,739	1·1	155,903	2·5	295,275	4·6	419,943	6·3
Insignia	752,883	16·1	892,403	17·2	1,053,935	17·0	971,886	15·2	922,987	13·8
Insignia 49	579,766	12·4	653,356	12·6	665,907	10·7	611,523	9·6	551,172	8·2
Mendos	....	....	375	....	9,428	0·2	56,716	0·9	43,312	0·6
Mengavi	82,844	1·8	372,584	7·2	422,114	6·8	205,579	3·2	103,489	1·5
Olympic	36,172	0·8	40,882	0·8	59,975	1·0	59,961	0·9	53,631	0·8
Wongoondy	286,570	6·1	219,536	4·2	183,295	3·0	94,559	1·5	59,645	0·9
Other varieties	439,569	9·4	352,154	6·8	312,884	5·0	303,630	4·7	207,900	3·1
Total	4,679,198	100·0	5,200,067	100·0	6,195,848	100·0	6,392,450	100·0	6,691,539	100·0

(*a*) For grain, hay and green fodder.

In the following table, details of area sown and wheat produced in each of the Australian States and the Australian Capital Territory are shown for the period 1963-64 to 1967-68.

WHEAT FOR GRAIN—AREA AND PRODUCTION: AUSTRALIAN STATES

Season	New South Wales	Victoria	Queensland	South Australia	Western Australia	Tasmania	Australian Capital Territory	Australia
AREA SOWN TO WHEAT FOR GRAIN ('000 ACRES)								
1963–64	4,964	3,109	938	2,802	4,640	18	3	16,474
1964–65	5,760	3,236	1,026	2,727	5,151	17	2	17,919
1965–66	4,577	3,074	954	2,745	6,150	14	1	17,515
1966–67	7,135	3,138	1,227	2,960	6,347	13	3	20,823
1967–68	8,215	3,224	1,477	2,864	6,647	12	2	22,441
PRODUCTION OF WHEAT ('000 BUSHELS)								
1963–64	122,472	76,302	22,275	53,971	52,340	483	69	327,912
1964–65	151,483	78,166	22,830	52,817	63,071	364	58	368,789
1965–66	39,117	60,591	17,429	39,976	102,156	368	28	259,666
1966–67	202,501	70,896	35,730	53,816	103,195	385	87	466,610
1967–68	87,323	28,317	27,417	26,899	106,975	316	42	277,289
YIELD PER ACRE (BUSHELS)								
1963–64	24·7	24·5	23·8	19·3	11·3	27·5	24·6	19·9
1964–65	26·3	24·2	22·3	19·4	12·2	21·7	27·6	20·6
1965–66	8·5	19·7	18·3	14·6	16·6	26·1	20·8	14·8
1966–67	28·4	22·6	29·1	18·2	16·3	30·2	32·5	22·4
1967–68	10·6	8·8	18·6	9·4	16·1	26·3	17·8	12·4

Oats

Although oats have been grown in Western Australia since the early development of wheat farming, cultivation was somewhat limited until stimulated by the introduction of large-scale sheep raising in the agricultural areas, when their high nutritional worth as stock feed made them a very valuable crop. The area sown to oats for grain increased from 193,486 acres in 1920 to 274,874 in 1930, to 429,177 in 1940, to 585,701 in 1950 and 1,329,804 in 1960. It then declined steadily to 1,124,890 acres in 1963 and has fluctuated just above this figure in later years, but fell to 1,158,114 acres in 1967.

In addition to their importance as local stock feed, oats are exported in substantial quantities. In 1967-68 the total sold overseas was 9,192,820 bushels, the principal buyers being Netherlands, the Federal Republic of Germany, Japan, Singapore and Malaysia. Exports to other Australian States are negligible.

Although growers are free to market oats in any way they wish, in practice a large proportion of all sales, whether for export or the local market, is effected through the Western Australian State Voluntary Oats Pool, which is conducted by the Grain Pool of W.A. under the control of the Minister for Agriculture. Co-operative Bulk Handling Limited as the Pool's licensed receiver, handles all oats marketed through the Pool.

OATS FOR GRAIN—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	bushels	bushels	$
1963–64	1,124,890	17,849,740	15·9	13,092,980
1964–65	1,151,969	14,011,068	12·2	9,888,344
1965–66	1,240,104	23,278,721	18·8	18,402,831
1966–67	1,203,815	22,117,198	18·4	15,799,834
1967–68	1,158,114	19,759,430	17·1	14,106,123

Barley

Barley grows well on the lighter soils of the wheat belt. It is also successful as a first crop on newly-developed land, and the opening up of new areas for farming accounts partly for the remarkable increase in the area sown for grain from 56,574 acres in 1951-52 to a peak of 540,646 acres in 1960-61. Since then the area sown has declined and in 1967-68 was 415,785 acres.

BARLEY FOR GRAIN—AREA AND PRODUCTION

Season	Two-row				Six-row			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	$	acres	bushels	bushels	$
1963–64	65,730	935,191	14·2	1,223,992	233,125	3,141,618	13·5	3,151,340
1964–65	57,982	613,580	10·6	813,422	244,651	3,087,435	12·6	3,126,212
1965–66	71,847	1,263,055	17·6	1,711,846	341,230	5,217,879	15·3	5,585,578
1966–67	72,190	1,450,153	20·1	1,927,087	300,909	5,257,331	17·5	5,548,775
1967–68	100,500	1,752,735	17·4	2,293,542	315,285	5,274,174	16·7	5,396,282

Both 'two-row' and 'six-row' barley are grown and, while a large amount of the grain produced is retained on farms for stock feed, a significant surplus is available for export. In 1967-68 the quantity exported overseas was 2,962,445 bushels, the principal buyers being Japan and the Republic of China (Formosa). Most 'six-row' barley marketed is shipped overseas, while sales of 'two-row' barley are mainly to local maltsters.

The marketing of barley, both for export and for local consumption, is controlled by the Western Australian Barley Marketing Board, Co-operative Bulk Handling Limited acting as the Board's licensed receiver.

Other Grains and Pulse

Rye and field peas are the only other grain or pulse crops which are cultivated to any appreciable extent. Maize and sorghum are grown but not in significant quantities.

RYE AND FIELD PEAS FOR GRAIN—AREA AND PRODUCTION

Season	Rye				Field peas			
	Area	Production			Area	Production		
		Total	Average yield per acre	Gross value		Total	Average yield per acre	Gross value
	acres	bushels	bushels	$	acres	bushels	bushels	$
1963–64	9,040	70,338	7·8	67,918	3,889	38,706	10·0	76,122
1964–65	9,754	64,533	6·6	68,740	2,781	23,776	8·5	56,246
1965–66	10,052	74,877	7·4	80,838	4,356	30,669	7·0	128,810
1966–67	10,682	99,471	9·3	110,861	4,551	39,435	8·7	107,656
1967-68	10,944	91,188	8·3	95,622	4,699	44,662	9·5	138,899

Hay

The principal cereal hay crop is oats and 153,870 tons of oaten hay were cut in 1967-68 from 118,478 acres. Wheat is the only other cereal crop which is used extensively for this purpose and in 1967-68 the production was 43,886 tons from 34,717 acres. Large quantities of meadow hay are cut from clover and grass pastures, production in 1967-68 being 209,646 tons from 155,355 acres. Barley, vetches, lucerne, field peas, and sorghum are also used for hay making but they are of minor importance only.

HAY—AREA AND PRODUCTION

Season	Meadow		Oaten		Wheaten		Other (*a*)		Total	
	Area	Production	Area	Production	Area	Production	Area	Production	Area	Production
	acres	tons	acres	tons	acres	tons	acres	tons	acres	tons
1963–64	127,941	182,040	121,316	159,006	31,951	39,634	7,449	8,733	288,657	389,413
1964–65	136,249	202,688	120,993	137,764	38,869	39,700	8,499	10,153	304,610	390,305
1965–66	134,563	197,652	111,615	158,765	37,681	47,354	6,938	10,646	290,797	414,417
1966–67	139,842	208,893	111,045	151,287	35,247	43,791	8,948	13,392	295,082	417,363
1967-68	155,355	209,646	118,478	153,870	34,717	43,886	9,373	13,751	317,923	421,153

(*a*) Mainly barley, vetch, lucerne, field pea and sorghum hay.

Pastures

The first established pastures in the State were cultivated to provide grazing for dairy cattle but, with the rapid increase in the number of sheep carried on wheat farms, by far the greater area is now located in the wheat-growing districts.

Subterranean clover was one of the first pasture species sown in these districts and it is still the most important, although other clovers and a variety of grasses including Wimmera rye grass and perennial rye grasses are also grown extensively. The present practice in the higher-rainfall areas is to sow a mixture of two or more species, selected for their suitability to the type of soil and rainfall, to give a legume grass pasture.

From 1·9 million acres in 1945-46, the area under established pasture has increased remarkably to 14·5 million acres in 1967-68. The top-dressing of pastures with superphosphate has developed to such an extent that this treatment is now general practice.

Western Australia is in a particularly good position to produce seed of annual legumes and grasses on a large scale and in 1967-68 produced more than half of the total Australian crop.

Each year approximately 1 million acres of new land are cleared, much of it along the south coast where the growing season is six or seven months. It has been found that if heavier seed and fertiliser applications are used, good subterranean clover seed crops can be grown in the first year on this new land. Similarly, in more inland districts good yields of barrel medic can be obtained on suitable soil types. The paddocks generally being used are large, open and only gently undulating, and are thus suitable for the operation of modern harvesting machines. Very little, if any, rain falls in the summer months and this ensures ideal harvesting conditions.

The development of suction harvesting machines in recent years has enabled this potential to be exploited. Suction harvesters are now used to harvest most of the more important small-seeded legume crops (subterranean clover, barrel medic and rose clover).

Seed certification schemes are operated by the Department of Agriculture for the main species of pasture seed. These schemes ensure that buyers are in a position to obtain good quality seed of the strain they require free from weed seeds. Certification schemes have assisted greatly in marketing and in allowing the development of a sound export trade.

Production of all kinds of pasture seed in 1966-67 totalled a record 24·7 million lb but declined slightly to 20·4 million lb in 1967-68. There is an important export trade in subterranean clover seed and in 1967-68 the total exported was 3,204,155 lb, almost all of which went to other Australian States.

PASTURE SEED HARVESTED

Season	Principal pasture seed								Total pasture seed	
	Subterranean clover		Rose clover		Barrel medic		Wimmera rye grass			
	Area harvested	Production	Area harvested	Production	Area harvested	Production	Area harvested	Production	Area harvested	Production
	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)	acres	centals (a)
1963–64	49,552	122,603	935	911	16,517	28,629	4,558	8,428	77,695	173,818
1964–65	59,275	132,292	1,849	2,822	5,355	5,407	1,468	2,142	75,984	155,894
1965–66	75,973	191,456	3,186	4,655	9,582	14,777	1,508	2,188	95,534	226,271
1966–67	87,001	196,611	6,343	9,745	16,489	24,245	1,798	2,927	118,089	246,954
1967–68	71,667	159,541	6,464	9,594	9,937	12,255	1,674	1,730	98,172	204,325

(a) Cental = 100 lb.

Green Feed

Large areas of oats are grown for use as green feed for stock. Among other crops which are cultivated for this purpose, but to a far lesser extent, are barley, field peas, wheat, rye, and lucerne. The total area of crops used for green feed was 414,553 in 1967-68, a considerable decline occurring over the previous ten years.

GREEN FEED—AREA GRAZED OR CUT
(Acres)

Season	Oats	Barley	Peas and beans	Wheat	Rye	Lucerne	All other kinds (a)	Total
1963–64	356,343	28,296	5,425	6,813	5,410	7,622	7,632	417,541
1964–65	378,466	24,796	7,306	9,931	9,991	7,825	7,724	446,039
1965–66	341,668	26,108	9,047	8,440	7,690	10,971	10,021	413,945
1966–67	332,090	22,073	8,748	10,590	6,961	6,396	11,993	398,851
1967–68	344,661	24,217	10,947	9,727	6,969	5,394	12,638	414,553

(a) Mainly sudax, vetches, millet, sudan grass and sorghum.

Linseed

During the war, attempts were made to cultivate those varieties of flax which yield linseed as the principal product, but they were largely unsuccessful and were abandoned. Efforts were renewed in 1947-48 but once again were short-lived, being discontinued after five years. Production recommenced in 1957-58 when 1,350 cwt were harvested

from 549 acres. Since then area and production have fluctuated widely, the lowest figures being recorded in 1965-66 when an area of 97 acres was cropped for a harvest of 303 cwt. A renewed interest in linseed as a cash crop for the Esperance area resulted in 1,751 acres being sown in 1966-67 and 6,886 acres in 1967-68.

LINSEED—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	cwt	cwt	$
1963–64	1,588	8,229	5·2	57,574
1964–65	2,135	11,338	5·3	77,922
1965–66	97	303	3·1	2,060
1966–67	1,751	12,680	7·2	44,380
1967-68	6,886	41,666	6·1	199,452

Cotton

The first commercial crop of cotton was grown at Kununurra in 1962-63 on land irrigated from the Ord River diversion dam at Bandicoot Bar. In 1967-68 a total area of 11,782 acres produced 231,732 cwt of seed cotton, the average yield per acre being 2,203 lb. A cotton ginnery to process the seed cotton was installed at Kununurra in 1963 and a second ginnery commenced operations in May 1967.

Under the *Raw Cotton Bounty Act* 1963-1969, the Commonwealth Government pays a bounty on raw cotton of grade higher than ' strict good ordinary ' and with a staple length of not less than seven-eighths of an inch which is produced in Australia. Bounty is paid at the rate of 13·4375 cents per lb on cotton of ' middling white ' grade with a staple length of one inch. Provision is made for premiums and discounts on grades and staples above and below these standards. The amount available for payment of bounty for the year commencing 1 March 1970 is $3 million and in the succeeding year $2 million. Prior to 1 March 1970 the amount available in any year from 1 January 1964 was $4 million.

COTTON—AREA AND PRODUCTION

Season	Area	Production of seed cotton		
		Total	Average yield per acre	Gross value
	acres	cwt	lb	$
1963–64	1,526	18,871	1,385	215,358
1964–65	5,475	96,341	1,971	1,065,364
1965–66	8,307	182,421	2,464	1,871,722
1966–67	11,892	262,500	2,472	*2,393,000
1967-68	11,782	231,732	2,203	1,892,000

* Revised.

Potatoes

The cultivation of potatoes, the State's principal vegetable crop, is largely confined to the higher-rainfall areas of the South-West. Winter crops are planted during June and early July on the frost-free hillsides and drained flats of the coastal areas between Waroona and Donnybrook and on the market garden land in the Perth Statistical Division. Mid-season plantings are made from the middle of July to November on summer-moist areas or on sprinkler-irrigated land in the Shires of Manjimup, Busselton, Albany and Waroona and in market gardens in the Perth Statistical Division. Late crops are planted between mid-November and the end of February in all districts growing early and mid-season crops, other than the Perth Statistical Division.

The average yield of potatoes per acre in Western Australia is consistently very much greater than that for Australia as a whole, and in 1967-68 comparative yields were 11·5 tons and 6·2 tons per acre. This is due mainly to the favourable climatic conditions

in Western Australia and the increasing use of sprinkler irrigation. Delaware, the variety which is grown almost exclusively in the State gives high yields under a wide range of growing conditions. There is a substantial export surplus, the bulk of which usually goes to the other Australian States with smaller consignments being sent overseas, principally to Singapore.

Potato production in Western Australia is controlled, under the provisions of the *Marketing of Potatoes Act, 1946-1966*, by the Western Australian Potato Marketing Board, which is the sole marketing authority for potatoes produced in the State. The object of this provision is to ensure adequate supplies for local consumption and effective marketing of crops.

POTATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	$
1963–64	5,835	55,402	9·5	3,680,892
1964–65	5,797	60,739	10·5	5,371,932
1965–66	6,229	62,865	10·1	5,026,658
1966–67	6,100	64,169	10·5	4,958,829
1967–68	6,149	70,469	11·5	5,537,310

Onions

The production of onions is largely confined to the metropolitan and adjacent areas, Osborne Park and Spearwood being the main centres. In these districts onions are usually grown on light sandy soils and yields of up to 20 tons per acre are obtained. An increase in area occurred during each season from 1958-59 to 1962-63 when 509 acres were planted. The area planted then declined steadily over the next three years, with a slight recovery occuring in 1966-67. In 1967-68 340 acres were planted for a production of 4,633 tons or 13·6 tons per acre.

Onions are imported annually into Western Australia during the winter but a surplus is produced locally during summer months which is exported, in the main, to other Australian States.

ONIONS—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	$
1963–64	446	6,814	15·3	443,572
1964–65	428	5,981	14·0	376,490
1965–66	331	3,948	11·9	392,870
1966–67	413	5,417	13·1	419,440
1967–68	340	4,633	13·6	540,941

Tomatoes

The main centres of production of tomatoes are at Carnarvon and Geraldton and in the districts around Perth. At Carnarvon and Geraldton, because of the warm winter climate, growers are able to produce early crops and take advantage of the high prices ruling on the Melbourne market during the winter and spring. They also supply substantial quantities to the Perth market and there is a consistent export trade with Singapore and Malaysia.

Supplies to the Perth market from December to June are grown in and near the metropolitan area, principally in the Wanneroo and Osborne Park districts. Tomatoes are also grown in a number of districts in the South-West and a small area is planted annually at Kalgoorlie.

The total area under tomatoes reached a peak of 1,555 acres in 1944-45 but the average yield per acre in that year was low and total production was only 7,424 tons. Since then, although the area has declined, yields per acre have improved and production in 1967-68 was 7,499 tons from 680 acres, an average yield of 11·0 tons per acre.

TOMATOES—AREA AND PRODUCTION

Season	Area	Production		
		Total	Average yield per acre	Gross value
	acres	tons	tons	$
1963-64	866	8,086	9·3	1,174,028
1964-65	722	7,286	10·1	1,177,004
1965-66	649	6,849	10·6	1,719,009
1966-67	691	7,398	10·7	1,949,857
1967-68	680	7,499	11·0	1,545,745

Other Vegetables

In addition to the cultivation of potatoes, onions and tomatoes, previously mentioned, many other vegetables are produced, the bulk of them in or near the metropolitan area where growers benefit not only from proximity to the principal market but also from an abundant supply of water at relatively shallow depths. Small quantities are also produced in many country districts. An important early crop of beans is grown at Carnarvon and transported by road to Perth. Approximately half of this crop is then railed or airfreighted to Adelaide with some going to Melbourne. Exports of cauliflowers to Singapore and Malaysia have become significant in recent years.

Details of the area and production of the principal vegetables other than potatoes, onions and tomatoes for the years 1963-64 to 1967-68 are given in the next three tables.

TURNIPS, CARROTS, PARSNIPS, BEETROOT—AREA AND PRODUCTION

Season	Turnips (swede and white)			Carrots			Parsnips			Beetroot		
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	cwt	$	acres	cwt	$	acres	cwt	$	acres	cwt	$
1963-64	166	19,996	95,232	381	82,379	229,514	127	19,288	105,132	117	17,834	93,726
1964-65	129	15,718	51,756	380	90,053	388,530	120	18,228	122,128	112	21,190	53,682
1965-66	134	16,225	49,842	403	99,523	248,517	124	20,588	113,563	95	16,792	78,519
1966-67	122	17,388	69,671	429	113,149	565,145	107	19,957	227,909	97	14,815	90,964
1967-68	127	16,205	106,228	415	111,005	362,986	105	18,661	140,144	82	12,883	57,716

PUMPKINS, BEANS, GREEN PEAS—AREA AND PRODUCTION

Season	Pumpkins			Beans						Green peas		
				Runner			French					
	Area	Production		Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	cwt	$	acres	cwt	$	acres	cwt	$	acres	cwt	$
1963-64	884	78,798	201,030	1,037	85,426	825,502	44	2,813	30,416	1,666	52,297	234,924
1964-65	937	88,655	344,276	981	86,443	878,596	57	3,406	60,400	2,120	81,956	311,484
1965-66	791	76,216	201,210	952	77,909	1,043,623	32	1,755	29,484	2,942	120,295	267,096
1966-67	867	77,277	277,424	1,028	79,898	1,161,713	42	1,661	22,324	3,236	99,575	418,817
1967-68	934	92,520	328,229	943	72,568	975,314	121	5,215	40,886	2,854	100,182	261,935

CABBAGES, CAULIFLOWERS, LETTUCE—AREA AND PRODUCTION

Season	Cabbages			Cauliflowers			Lettuce		
	Area	Production		Area	Production		Area	Production	
		Quantity	Gross value		Quantity	Gross value		Quantity	Gross value
	acres	cwt	$	acres	cwt	$	acres	cwt	$
1963–64	350	102,056	285,254	618	106,329	602,116	416	69,283	420,290
1964–65	344	99,915	238,730	607	119,057	579,688	404	67,235	479,078
1965–66	368	104,638	260,172	663	127,165	686,698	433	77,655	598,423
1966–67	356	97,523	254,048	679	134,111	763,229	417	75,950	666,402
1967–68	392	115,376	451,449	640	124,847	848,906	431	75,213	613,289

Orchards

Fruit production is largely confined to the temperate regions between Gingin to the north of Perth and Albany on the south coast. The cool, wet winters and warm, dry summers of this area permit the successful cultivation of a wide variety of fruits. In the southern and south-western sections, apples, pears and stone fruits are grown extensively while in the districts around Perth the principal crops are apples, stone fruits, citrus fruits and grapes. Outside this main fruit-growing area, banana plantations have been established at Carnarvon in the North-West.

The following table shows details of production of the principal groups of orchard fruit during the years 1963-64 to 1967-68.

FRUIT (*a*)—AREA AND GROSS VALUE OF PRODUCTION

Season	Pome (*b*)		Citrus (*c*)		Stone (*d*)		Other (*e*)		Total fruit (*a*)	
	Area (*f*)	Gross value of production	Area (*f*)	Gross value of production	Area (*f*)	Gross value of production	Area (*f*)	Gross value of production	Area (*f*)	Gross value of production
	acres	$	acres	$	acres	$	acres	$	acres	$
1963–64	16,222	4,915,282	5,987	1,423,352	2,430	878,414	1,031	767,340	25,670	7,984,388
1964–65	16,903	6,929,850	6,005	1,360,232	2,443	999,070	1,074	1,033,350	26,425	10,322,502
1965–66	17,200	5,418,650	5,964	1,262,268	2,514	957,298	1,037	1,195,402	26,715	8,833,618
1966–67	16,746	7,288,924	6,130	1,618,232	2,489	1,048,423	1,093	1,260,718	26,457	11,216,297
1967–68	16,112	7,251,995	5,932	1,843,954	2,458	1,181,588	1,097	824,100	25,599	11,101,637

(*a*) Excludes grapes. (*b*) Apples, pears and quinces. (*c*) Principally oranges, mandarins, lemons and grapefruit. (*d*) Apricots, peaches, nectarines, plums and cherries. (*e*) Bananas, loquats, figs, passion fruit, almonds and other minor fruits. (*f*) Includes area under young non-bearing trees.

Apples

Apples, which are the principal fruit crop, account for more than half the total orchard area. Manjimup, Donnybrook, Bridgetown and Mount Barker (based on number of bearing and non-bearing trees) are the most important centres but other districts in the South-West and in the Darling Range near Perth produce large quantities. In 1967-68 the total area of bearing trees was 11,269 acres which produced 2,060,158 bushels, the principal varieties being Granny Smith, Yates, Jonathan, Cleopatra and Delicious.

APPLES—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (*a*)	Gross value
	acres	acres	bushels	bushels	$
1963–64	10,889	4,237	1,287,310	118·2	4,375,928
1964–65	11,511	4,231	2,355,160	204·6	6,476,414
1965–66	11,760	4,281	1,603,040	136·3	4,808,375
1966–67	11,596	4,058	2,386,741	205·8	6,694,783
1967–68	11,269	3,809	2,060,158	182·8	6,636,970

(*a*) Calculated on the area of bearing trees only.

There is a valuable export trade and overseas shipments exceed 1 million bushels annually. The Federal Republic of Germany is the most important market, followed by the United Kingdom, with Singapore and Sweden also buying significant quantities.

Pears

Pears are usually grown in conjunction with apples but the area planted and the quantity produced are much less, the total area of bearing trees in 1967-68 being 743 acres and the production 181,772 bushels. The bulk of the crop is consumed locally but significant quantities are exported, principally to Singapore, the United Kingdom, Malaysia and Mauritius.

PEARS—AREA AND PRODUCTION

Season	Area		Production		
	Trees of bearing age	Young trees not bearing	Total	Average yield per acre (a)	Gross value
	acres	acres	bushels	bushels	$
1963–64	783	297	155,817	199·0	537,002
1964–65	799	349	190,915	238·9	451,488
1965–66	800	344	189,979	237·5	608,701
1966–67	812	268	153,872	189·5	592,807
1967–68	743	275	181,772	244·6	611,486

(a) Calculated on the area of bearing trees only.

Citrus Fruit

The following tables give details of production of each type of citrus fruit for the years 1963-64 to 1967-68.

ORANGES AND MANDARINS—AREA AND PRODUCTION

Season	Oranges				Mandarins			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	$	acres	acres	bushels	$
1963–64	3,636	1,083	391,047	1,110,412	231	231	27,252	126,462
1964–65	3,710	1,024	480,422	1,096,744	251	248	26,611	112,060
1965–66	3,670	1,017	322,866	974,768	262	288	23,935	122,865
1966–67	3,691	1,120	466,349	1,226,919	272	341	32,978	147,741
1967–68	3,603	1,032	482,199	1,359,100	316	312	41,780	204,443

LEMONS AND OTHER CITRUS FRUIT—AREA AND PRODUCTION

Season	Lemons				Other citrus (a)			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	$	acres	acres	bushels	$
1963–64	511	164	123,697	151,968	114	17	21,053	34,510
1964–65	505	126	97,669	121,422	113	28	18,614	30,006
1965–66	505	97	117,604	137,906	108	17	16,060	26,729
1966–67	502	82	141,856	200,953	104	18	20,881	42,619
1967–68	488	69	142,859	235,778	94	18	18,513	44,633

(a) Principally grapefruit.

While the Shire of Chittering is the chief citrus fruit producer, there are other important areas near Perth in the Shires of Kalamunda, Swan-Guildford, Armadale-Kelmscott, Gosnells and Capel (in order according to number of trees bearing and non-bearing).

Although oranges are by far the most important crop and account for almost four-fifths of the total area, substantial quantities of lemons, grapefruit and mandarins are also produced.

Production is largely for local consumption but there is some export trade, mainly with Singapore, Mauritius and Malaysia.

Stone Fruits

Plums, peaches, apricots, nectarines and cherries are grown in the hills districts in the Darling Range near Perth, in the Swan Valley and in many districts in the South-West. The total area under stone fruit in 1967-68 was 2,458 acres, comprising 1,122 acres of plums, 894 of peaches, 291 of apricots, 106 of nectarines and 45 of cherries. The bulk of the stone fruit crop is consumed locally but shipments of plums are sent overseas, mainly to Singapore and Malaysia.

The following tables give details of production of the principal stone fruits for the five years 1963-64 to 1967-68.

PLUMS AND PEACHES—AREA AND PRODUCTION

Season	Plums and prunes				Peaches			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	$	acres	acres	bushels	$
1963–64	814	231	95,152	428,012	706	198	84,228	223,374
1964–65	821	230	101,828	526,556	727	197	87,371	272,230
1965–66	840	250	103,744	384,876	744	212	120,605	379,219
1966–67	869	253	122,505	490,847	742	182	107,669	324,286
1967–68	901	221	142,943	562,585	746	148	135,834	370,863

APRICOTS AND NECTARINES—AREA AND PRODUCTION

Season	Apricots				Nectarines			
	Area		Production		Area		Production	
	Trees of bearing age	Young trees not bearing	Quantity	Gross value	Trees of bearing age	Young trees not bearing	Quantity	Gross value
	acres	acres	bushels	$	acres	acres	bushels	$
1963–64	270	46	35,586	153,064	112	16	12,307	51,770
1964–65	256	53	23,996	147,168	104	17	10,525	44,672
1965–66	244	61	28,606	117,758	96	22	14,255	54,360
1966–67	226	61	33,620	148,181	87	23	11,908	60,016
1967–68	233	58	36,636	148,544	86	20	14,807	63,966

Bananas

Production of bananas is confined almost entirely to a narrow strip of land along the Gascoyne River at Carnarvon. The plantations are dependent on water pumped from bores which tap a subterranean flow in the sands of the usually dry river bed. As a surface flow in the river channel results only from heavy rains, which do not occur every year, a problem is presented in the falling-off of water supplies and in the increase in the salt content of the underground water during long dry periods. These conditions and also periodic damage from cyclones cause fluctuations in the area of the plantations and in production.

The crop is transported by road to Perth and sold locally in competition with bananas imported from other Australian States.

BANANAS—AREA AND PRODUCTION

Season	Area		Production		
	Plants of bearing age	Young plants not bearing	Total	Average yield per acre (*a*)	Gross value
	acres	acres	bushels	bushels	$
1963–64	311	86	140,643	452·2	672,454
1964–65	369	100	145,095	393·2	949,984
1965–66	345	101	198,693	575·9	1,117,695
1966–67	364	142	169,085	464·5	1,162,842
1967–68	380	138	126,697	333·4	709,503

(*a*) Calculated on the area of bearing plants only.

Vineyards

Almost three-quarters of the State's 7,665 acres of grape vines are in the Shire of Swan-Guildford, other important centres being Chittering, Wanneroo, Toodyay, Gosnells and Northam.

The area of vines for the production of dried currants, sultanas and table raisins has declined from a post-war peak of 5,830 acres in 1947-48 to 2,901 acres in 1967-68 but it still represents almost two-fifths of the total area under grapes. Currants are the main item of production and a high proportion of the crop is exported overseas, the United Kingdom and Canada being the principal buyers in 1967-68. Small quantities are exported to other Australian States. Production of sultanas and table raisins is of minor importance and exports are negligible.

Table grapes are grown for the local market and for export overseas, mainly to Singapore and Malaysia. The production of beverage wines has exceeded 600,000 gallons for the past seven years, most being for local consumption although small amounts are exported to the other Australian States and overseas.

GRAPES—AREA AND PRODUCTION

Season	Fresh grapes for table use and wine making				Dried vine fruits				Production of beverage wine
	Area		Production		Area		Produetion		
	Vines of bearing age	Young vines not bearing	Quantity	Gross value	Vines of bearing age	Young vines not bearing	Quantity (packed weight)	Gross value	
	acres	acres	tons	$	acres	acres	tons	$	gallons
1963–64	4,449	799	8,246	749,104	3,276	105	2,287	594,040	666,443
1964–65	4,339	626	7,591	724,962	3,238	107	2,439	669,912	612,756
1965–66	4,453	571	7,542	687,670	3,078	113	1,422	484,890	626,686
1966–67	4,342	477	7,401	593,230	2,962	164	1,420	431,679	704,886
1967–68	4,334	429	6,987	629,643	2,729	172	1,708	462,247	615,711

Nurseries

Commercial nurseries are concentrated in the Perth Statistical Division, Kalamunda with 30 per cent of the total area of commercial nurseries being the principal centre. Most nursery production is in the form of potted shrubs, ornamental trees and cut flowers for domestic use but large numbers of fruit trees are produced for planting in orchards.

NURSERIES (*a*): AREA AND VALUE OF SALES (*b*)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Area acres	282	280	284	240	246
Sales (year ended 31 March) $	776,682	805,356	924,909	893,627	910,478

(*a*) Excludes non-commercial nurseries. (*b*) Value at the holding, after deducting costs incurred in marketing.

Holdings Growing Certain Crops

The following table shows the number of holdings which grew certain crops in each of the years 1963-64 to 1967-68.

NUMBER OF HOLDINGS GROWING CERTAIN CROPS

Crop	1963–64	1964–65	1965–66	1966–67	1967-68
20 acres and over—					
Wheat for grain	8,983	8,779	9,044	8,897	8,746
Oats for grain	7,521	7,648	7,930	7,614	7,532
Barley for grain	2,502	2,489	3,017	2,782	2,905
5 acres and over—					
Linseed	34	27	4	15	35
1 acre and over—					
Vegetables (all kinds) (*a*)	1,839	1,769	1,813	1,970	1,818
Potatoes	658	626	627	609	577
Onions	200	204	164	170	153
Grapes	771	704	706	702	665
Orchard fruit (all kinds) (*b*)	2,666	2,698	2,718	2,631	2,544
Citrus fruit	870	930	923	932	913
Pome fruit	1,348	1,382	1,378	1,321	1,273
Stone fruit	563	581	576	570	560
Bananas	91	98	105	122	112
Passion fruit	32	38	42	40	38

(*a*) Includes growers of potatoes and onions. (*b*) Includes growers of citrus, pome and stone fruit but excludes growers of bananas and passion fruit.

Artificial Fertilisers

Soils in Western Australia are acutely deficient in phosphate, and regular applications of phosphatic fertiliser are required for crop and pasture growth. Newly cleared land may require applications of up to 200 lb of superphosphate per acre for satisfactory crop yields, but annual applications can be reduced as the phosphate content of the soil is improved through the residual effect of the added fertiliser. On established land, applications of 70 lb to 100 lb of superphosphate per acre are commonly used in wheat growing.

Nitrogen deficiencies also exist in some areas. Legume pastures have assisted greatly in building up nitrogen in the soil and in some situations appreciable increases in yield may be achieved by applying forms of concentrated nitrogenous fertiliser.

The following table shows details of superphosphate and other artificial fertilisers used on crops and pastures during the years 1963-64 to 1967-68

ARTIFICIAL FERTILISER USED ON RURAL HOLDINGS

Season	Crops					Pastures				
	Area fertilised	Quantity used				Area fertilised	Quantity used			
		Super-phosphate (*a*)	Other artificial fertilisers	Total	Average per acre		Super-phosphate (*a*)	Other artificial fertilisers	Total	Average per acre
	acres	tons	tons	tons	cwt	acres	tons	tons	tons	cwt
1963–64	6,679,342	325,460	25,593	351,053	1·05	7,447,379	362,831	7,058	369,889	0·99
1964–65	7,271,208	357,513	27,830	385,343	1·06	8,887,681	453,205	5,906	459,111	1·03
1965–66	8,434,054	421,071	30,851	451,922	1·07	10,051,456	512,758	7,750	520,508	1·04
1966–67	8,531,382	436,834	37,269	474,103	1·11	11,601,382	609,858	12,594	622,452	1·07
1967–68	8,867,662	472,304	53,650	525,954	1·19	12,596,847	676,535	17,479	694,014	1·10

(*a*) Includes superphosphate with trace elements.

PASTORAL PRODUCTION

Throughout this section, where mention is made of the ' pastoral areas ' the portion of the State referred to comprises the Kimberley, Pilbara, North-West and Central Statistical Divisions together with the Shires of Coolgardie, Kalgoorlie, Laverton, Leonora and Menzies, which form part of the Eastern Goldfields Division. The balance of the

State, referred to as the ' agricultural areas ', comprises the Perth, South-West, Southern Agricultural, Central Agricultural and Northern Agricultural Divisions together with the Shires of Dundas, Esperance, Ravensthorpe and Yilgarn in the Eastern Goldfields Division.

In the early days of settlement, pastoral activities in Western Australia were confined largely to what are now the agricultural areas and were usually associated with the cultivation of crops. However, beginning with Captain George Grey's visit in 1838 to the area known as the West Kimberley, explorers increasingly drew attention to the pastoral possibilities of large sections of the present Kimberley, Pilbara, North-West and Central Statistical Divisions.

In 1857 and 1858, F. T. Gregory noted the existence of good pastoral country in the Murchison and the Gascoyne districts and in the course of a journey further to the north in 1861 he discovered the Ashburton, Fortescue, De Grey and Oakover Rivers. His reports of good grazing lands in the area led to the establishment of sheep stations by pastoralists from the south, the first of such ventures, in 1863, being in the De Grey district of what is now the Pilbara Statistical Division. Graziers were also turning their attention to the south-east and in the 1870s pastoral lands were being taken up in the coastal areas to the south of the Nullarbor Plain. Another development in the extension of pastoral activity began with Alexander Forrest's journey through the Kimberley in 1879 and his favourable reports on the suitability of the country for grazing. Leases along the Fitzroy and the Ord Rivers were stocked not only with livestock shipped from the south and from the other Australian Colonies but also with cattle brought overland to the area, principally from Queensland and New South Wales, by remarkable feats of droving.

Pastoral production, comprising the production of meat as well as wool, in 1967-68 contributed over 27 per cent of the total net value of Western Australian primary production.

Sheep

The following table shows the total numbers of sheep, and their distribution between the agricultural and pastoral areas, in each year from 1946 to 1968.

SHEEP NUMBERS AND DISTRIBUTION

At 31 March—	In agricultural areas		In pastoral areas		State total
	Number	Proportion of State total (per cent)	Number	Proportion of State total (per cent)	
1946	7,029,761	72·0	2,736,222	28·0	9,765,983
1947	6,990,756	71·4	2,796,246	28·6	9,787,002
1948	7,417,053	71·0	3,026,745	29·0	10,443,798
1949	7,509,710	69·1	3,362,830	30·9	10,872,540
1950	7,518,456	68·8	3,404,711	31·2	10,923,167
1951	8,269,814	72·8	3,092,094	27·2	11,361,908
1952	9,174,640	75·3	3,013,112	24·7	12,187,752
1953	9,304,681	74·6	3,169,991	25·4	12,474,672
1954	9,921,867	75·8	3,165,241	24·2	13,087,108
1955	10,273,780	76·6	3,137,502	23·4	13,411,282
1956	10,976,121	77·7	3,152,047	22·3	14,128,168
1957	11,845,409	79·6	3,041,140	20·4	14,886,549
1958	12,704,210	80·8	3,019,753	19·2	15,723,963
1959	13,070,754	80·6	3,144,490	19·4	16,215,244
1960	13,395,527	81·6	3,016,062	18·4	16,411,589
1961	13,940,614	81·3	3,210,770	18·7	17,151,384
1962	14,951,185	81·6	3,362,694	18·4	18,313,879
1963	15,403,902	82·3	3,323,222	17·7	18,727,124
1964	16,608,300	82·4	3,556,568	17·6	20,164,868
1965	18,670,759	83·4	3,721,075	16·6	22,391,834
1966	20,695,040	84·7	3,731,768	15·3	24,426,808
1967	23,525,280	86·0	3,845,106	14·0	27,370,386
1968	26,406,575	87·6	3,754,302	12·4	30,160,877



BEEF CATTLE IN THE NORTH

Over one-half of the cattle kept for meat production in the State are located in the pastoral areas and, of these, the majority are carried in the Kimberley Statistical Division which contained nearly 600,000 head at 31 March 1969. Droving in the northern pastoral areas has been almost completely replaced by the use of large road trucks to transport the animals from the cattle stations to abattoirs at the ports of Wyndham, Broome and Derby.

The present distribution of sheep in the State is the result of two opposite trends operating over many years. In the pastoral, or station areas where the industry is based on long-term pastoral leases, severe droughts led to a decline in the number of sheep, although some recovery has taken place in recent years. In the agricultural, or farming areas, however, the sheep population has steadily risen. Factors contributing to this rise, particularly since the war, have been the increasing use of subterranean clover in the wheat belt, the provision in many areas of more assured water supplies, a taxation policy which, by the provision of special concessions to primary producers, has encouraged farmers to clear and develop new land, the War Service Land Settlement Scheme which developed new areas and the stimulating effect of buoyant wool prices in the post-war period.

The overall result has been a marked upward trend in sheep numbers since the war, and at 31 March 1968, the State total was 30·2 million, compared with 9·77 million at the same date in 1946. Numbers in the agricultural areas increased from 7 million, or 72 per cent of the State total, to 26·4 million or nearly 88 per cent. They also increased in the pastoral areas from 2·74 million to 3·75 million, but as a percentage of the State total this represents a decline from 28 per cent to little more than 12 per cent.

SHEEP FLOCKS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF FLOCK

Size of holding (acres)	Size of sheep flock (numbers)										Total, all rural holdings
	1–299	300–499	500–699	700–999	1,000–1,399	1,400–1,999	2,000–2,999	3,000–4,999	5,000 and over	Total flocks	
1– 99	398	7	1	1	....	....	....	....	....	407	4,553
100– 199	271	39	10	3	....	1	....	....	....	324	1,251
200– 299	225	52	30	16	5	1	....	....	....	329	1,058
300– 399	171	78	41	35	15	4	....	....	....	344	837
400– 499	109	52	49	33	22	10	1	....	....	276	632
500– 599	88	46	43	50	26	20	2	....	....	275	523
600– 799	125	81	75	108	89	52	11	1	....	542	907
800– 999	80	86	85	100	101	73	59	....	....	584	786
1,000– 1,399	112	104	164	208	230	228	160	23	....	1,229	1,501
1,400– 1,999	73	83	183	374	338	368	321	88	4	1,832	2,082
2,000– 2,999	86	95	170	393	563	583	516	250	26	2,682	3,148
3,000– 4,999	85	81	116	245	472	617	593	339	118	2,666	3,306
5,000– 9,999	21	19	26	74	162	257	339	274	151	1,323	1,435
10,000–19,999	1	1	2	9	10	29	49	72	77	250	264
20,000–49,999	1	....	1	1	1	3	6	13	21	47	57
50,000 and over	6	4	4	4	10	9	12	52	300	401	513
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853

SHEEP FLOCKS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF FLOCK AND AREA OF ESTABLISHED PASTURE

Area of established pasture (acres)	Size of sheep flock (numbers)										Total, all rural holdings
	1–299	300–499	500–699	700–999	1,000–1,399	1,400–1,999	2,000–2,999	3,000–4,999	5,000 and over	Total flocks	
Nil	357	219	286	435	411	335	185	107	309	2,644	7,529
1– 9	77	1	2	....	1	....	....	....	....	81	441
10– 19	61	2	4	3	7	5	....	1	....	83	340
20– 29	55	5	4	7	11	4	1	1	....	88	289
30– 49	101	8	7	20	13	6	6	1	....	162	474
50– 69	97	11	11	17	12	11	1	3	1	164	439
70– 99	131	25	15	28	16	4	3	....	....	222	568
100– 149	224	56	62	68	44	29	15	4	1	503	1,136
150– 199	158	84	48	49	39	29	18	1	2	428	945
200– 299	241	129	135	176	128	53	31	6	1	900	1,494
300– 399	138	109	113	171	157	66	25	9	1	789	1,115
400– 499	73	57	101	157	173	119	33	8	1	722	920
500– 699	72	63	106	241	345	308	154	24	3	1,316	1,534
700– 999	41	38	68	179	326	492	368	41	3	1,556	1,665
1,000–1,999	24	21	36	98	330	714	965	485	46	2,719	2,814
2,000 and over	2	....	2	5	31	80	264	421	329	1,134	1,150
Total	1,852	828	1,000	1,654	2,044	2,255	2,069	1,112	697	13,511	22,853

In the preceding tables sheep flocks at 31 March 1966, in size groups, are classified according to the size of the holding and to the area of established pasture. Of the 22,853 holdings of all types, sheep were carried on 13,511. Holdings of between 1,000 and 5,000 acres accounted for 62 per cent of the flocks and holdings which carried between 500 and 2,000 sheep for 51 per cent of the flocks. Of the holdings carrying sheep 10,867 or 80 per cent had some established pasture and 9,136, or 68 per cent had 200 acres and over.

An analysis of collected data relating to breeds of sheep as at 31 March 1968 showed that Merinos accounted for 91 per cent of the total. Corriedales, Polwarths and British breeds, the most important of which are Romney Marsh, Dorset Horn, South Down, Border Leicester and Suffolk, comprised 4 per cent and the remaining 5 per cent was made up of Crossbreds, including Merino Comebacks. With low wool prices operating during the ten years prior to the war, some farmers turned to the production of fat lamb carcasses for export, mainly to the United Kingdom. The industry which developed as a result was based on the use of Corriedale and British breeds of rams, which in 1968 comprised about 17 per cent of the rams in the State. As a result of the high wool prices during the Korean war the ' fat lamb ' industry declined sharply in 1950-51 and 1951-52 but recovered in 1952-53. The recovery in the industry was maintained for some years and exports of lamb have fluctuated between 4·08 million lb in 1953-54 and 11·5 million lb in 1960-61. Since then increased lamb production in the United Kingdom and variable market prices have led to a sharp decline in the export of lamb, the total falling to 2·06 million lb in 1967-68.

The following table shows the numbers of each breed of sheep in the State at 31 March 1968.

BREEDS OF SHEEP (*a*)

Breed	At 31 March 1968			
	Rams (one year and over)	Other sheep	Total	Number of holdings with rams (*b*)
Merino	343,009	26,943,090	27,286,099	9,941
Other recognised breeds—				
Border Leicester	10,880	139,346	150,226	803
Cheviot	361	3,522	3,883	46
Corriedale	22,480	781,767	804,247	1,216
Dorset Horn	10,812	58,667	69,479	1,030
English Leicester	452	5,769	6,221	31
Poll Dorset	1,089	5,250	6,339	75
Polwarth	4,259	126,829	131,088	216
Romney Marsh	5,177	60,285	65,462	449
Ryeland	304	1,140	1,444	37
Shropshire	410	1,402	1,812	33
South Down	11,773	33,724	45,497	947
South Suffolk	737	1,601	2,338	59
Suffolk	2,800	12,847	15,647	374
Other	33	29	62	(*e*)
Total, Other recognised breeds	71,567	1,232,178	1,303,745	(*e*)
Merino Comeback (*c*)	1,294	337,642	338,936	84
Crossbreds (*d*) and other mixed breeds	1,702	1,230,395	1,232,097	222
GRAND TOTAL	417,572	29,743,305	30,160,877	12,340

(*a*) Statistics collected triennially. (*b*) Components do not add to total because more than one breed of ram may be reported by any one holding. (*c*) More than one-half Merino. (*d*) British breed to the extent of one-half or more. (*e*) Not available.

Wool

Total wool production in 1967-68 amounted to 300·2 million lb, the highest ever recorded, compared with 166·5 million lb ten years earlier. Shorn wool in 1967-68 accounted for 286·3 million lb. It was shorn from 31·8 million sheep and lambs, the

average weight of wool shorn being 9·0 lb, compared with 9·1 lb in the previous season. The balance of the 1967-68 production comprised 3·36 million lb of dead and fellmongered wool, and 10·6 million lb of wool exported on skins.

During the war years wool was compulsorily acquired by the Commonwealth Government in accordance with an agreement with the United Kingdom. The scheme was administered by the Central Wool Committee and the price paid was determined by a system of appraisement which, however, operated within limits agreed upon by the two Governments. During this period large stocks of wool were accumulated and after the war an organisation was formed with the object of selling this surplus with the least possible disturbance to ruling prices. Government control of wool ceased after the war and wool auctions operated by members of the National Council of Wool Selling Brokers of Australia were resumed in Perth in 1946. These sales are attended by Australian and overseas buyers who bid for individual lots. Some wool is auctioned at sales conducted independently of the National Council and a significant portion of the clip is purchased on farms by wool dealers who buy direct from producers. In September 1957, auctions were held at Albany for the first time. Sales in Perth were discontinued in 1960 and the selling centre was transferred to Fremantle.

The number of sheep and lambs shorn, the average weight of wool shorn per sheep or lamb, and production of wool for five years to 30 June 1968 are given in the following table. The succeeding table shows the gross value of wool production for the same period.

SHEEP SHORN AND WOOL PRODUCTION

Year	Sheep shorn (*a*)			Average weight of wool shorn (*a*)	Wool production (in the grease)			
	Sheep	Lambs	Total		Shorn (*a*)	Dead and fellmongered (*b*)	Exported on skins (*c*)	Total
	'000	'000	'000	lb	'000 lb	'000 lb	'000 lb	'000 lb
1964	17,021	4,191	21,212	9·8	207,235	2,320	7,019	216,574
1965	18,437	4,742	23,179	8·6	198,200	2,795	6,040	207,035
1966	20,458	5,177	25,635	9·2	234,850	3,506	9,174	247,530
1967	22,824	5,857	28,681	9·1	261,000	2,852	8,723	272,575
1968	25,249	6,560	31,809	9·0	286,281	3,361	10,587	300,229

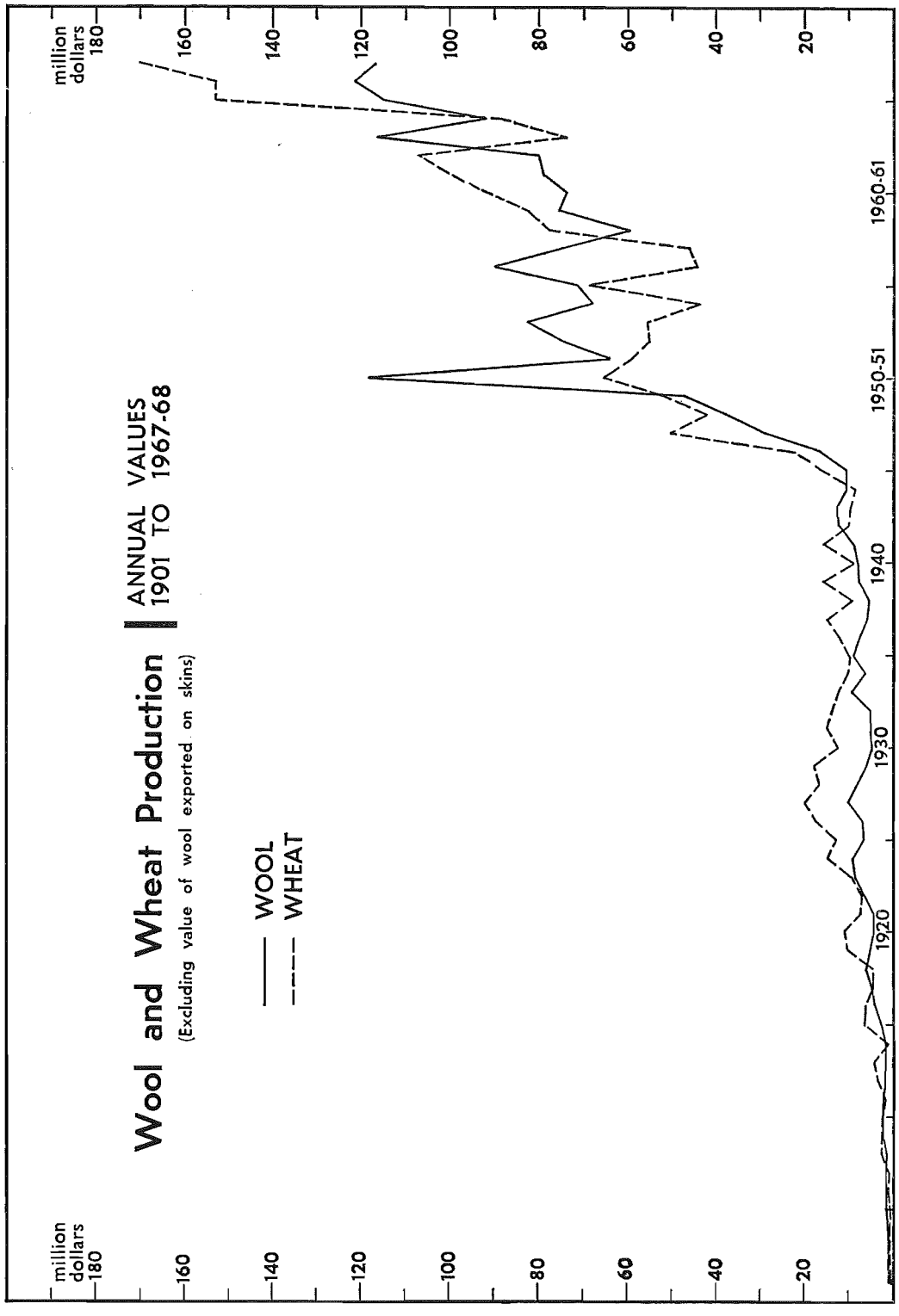
(*a*) For 1964 and 1965, figures are for the year ended 31 March. The figures for 1966 and later relate to the year ended 30 June. (*b*) For 1964 and 1965, figures comprise dead wool for the year ended 31 March, and fellmongered wool for the year ended 30 June. The figures for 1966 and later relate entirely to the year ended 30 June. (*c*) Year ended 30 June.

GROSS VALUES OF WOOL PRODUCTION
($'000)

Year	Shorn wool (*a*)	Dead wool and fellmongered wool (*b*)	Wool exported on skins (*c*)	Total
1964	115,345	986	3,532	119,863
1965	92,282	993	2,528	95,803
1966	114,049	1,134	3,015	118,198
1967	120,437	1,072	3,312	124,821
1968	115,756	897	2,493	119,146

(*a*) See note (*a*) to table above. (*b*) See note (*b*) to table above. (*c*) Year ended 30 June.

Although the greater proportion of the wool clip is exported in the grease, scouring, or degreasing, is done in the State and degreased wool is an appreciable item in the external wool trade. During 1967-68 exports of greasy and degreased wool were 249·6 million lb and 25·3 million lb respectively. The most important buyers of greasy wool were Japan, the United Kingdom, the Federal Republic of Germany, France, the Union of Soviet Socialist Republics, Italy and the United States of America. Principal purchasers of degreased wool were the United States of America, the United Kingdom, the Federal Republic of Germany, Italy, Canada, the Union of Soviet Socialist Republics and Australian States.


Wool and Wheat Production
(Excluding value of wool exported on skins)
ANNUAL VALUES
1901 TO 1967-68
WOOL
WHEAT
million dollars
180
160
140
120
100
80
60
40
20
1920
1930
1940
1950-51
1960-61

Cattle

Cattle are classified according to the two main purposes of 'meat production' and 'milk production', irrespective of breed.

The table below shows the numbers of cattle for meat production kept on rural holdings at 31 March 1964 to 1968. The table on page 360 details, for 1965 to 1968, the numbers kept for milk production. Cattle numbers in each State and Territory at 31 March 1968 are given in the second table on page 363.

In 1968 the Kimberley Statistical Division carried 547,952 head of cattle for meat production, or 44·4 per cent of the State total. Other pastoral areas carried 90,882 head and agricultural areas 596,104.

The cattle which were originally shipped or driven overland from the other Australian Colonies to start the industry in the northern pastoral areas were predominantly shorthorn breeds, and these still form the great bulk of all cattle kept for meat production in those areas. Carcass weights, however, have been increased by importing better-type bulls, by improving watering facilities on the cattle stations and by the almost complete replacement of droving by the transport of the animals from stations to abattoirs in large road trucks.

Killing and freezing works operate at the ports of Wyndham, Broome and Derby and consignments of frozen and chilled beef from these centres go mainly to overseas destinations. Some of it is sent south for consumption in the metropolitan area and live cattle are also shipped from northern ports to be slaughtered for the metropolitan market. By far the greater proportion of beef consumed in the southern part of the State, however, is supplied from the agricultural areas, much of it being from stock culled from dairy herds.

The following table shows the numbers and proportions of cattle for meat production in agricultural areas and in pastoral areas at 31 March 1964 to 1968. The agricultural areas have become an increasingly important source of meat production in recent years, and now contain almost half of the cattle kept for this purpose, compared with little more than one-quarter ten years earlier.

CATTLE FOR MEAT PRODUCTION—NUMBERS AND DISTRIBUTION

Particulars	At 31 March—				
	1964	1965	1966	1967	1968
Number of head—					
In agricultural areas	415,361	411,142	451,062	532,608	596,104
In pastoral areas	656,287	627,262	610,705	625,304	638,834
Total	1,071,648	1,038,404	1,061,767	1,157,912	1,234,938
	per cent	per cent	per cent	per cent	per cent
Proportion of total—					
In agricultural areas	38·8	39·6	42·5	46·0	48·3
In pastoral areas	61·2	60·4	57·5	54·0	51·7

In two tables on page 358 herds of cattle kept for meat production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for meat production were carried on 8,304. Holdings of between 1,000 and 5,000 acres accounted for 41 per cent of the herds, and holdings which carried less than fifty cattle for meat production for 67 per cent of the herds. Of the holdings carrying cattle for meat production 7,266, or 88 per cent, had some established pasture and 5,231, or 63 per cent, had 200 acres and over.

CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966 CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1–9	10–19	20–29	30–49	50–99	100–199	200–299	300–999	1,000 and over	Total herds	
1– 99	384	130	53	41	17	....	....	....	....	625	4,553
100– 199	203	139	82	106	73	12	....	....	....	615	1,251
200– 299	144	103	78	105	126	32	2	....	....	590	1,058
300– 399	97	88	56	90	91	56	6	1	....	485	837
400– 499	71	45	42	62	112	56	11	3	....	402	632
500– 599	38	40	34	49	81	66	15	3	....	326	523
600– 799	82	58	49	77	120	88	27	14	....	515	907
800– 999	86	46	27	46	87	73	30	15	....	410	786
1,000– 1,399	162	78	53	80	110	95	36	25	....	639	1,501
1,400– 1,999	266	111	70	76	121	68	23	30	....	765	2,082
2,000– 2,999	383	134	100	122	151	68	33	26	2	1,019	3,148
3,000– 4,999	365	129	85	113	159	69	23	34	1	978	3,306
5,000– 9,999	173	46	46	62	64	58	19	32	2	502	1,435
10,000–19,999	36	7	3	19	16	12	8	17	5	123	264
20,000–49,999	6	1	1	1	2	3	4	3	4	25	57
50,000 and over	21	19	12	27	18	34	17	44	93	285	513
Total	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

CATTLE FOR MEAT PRODUCTION AT 31 MARCH 1966 CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

Area of established Pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1–9	10–19	20–29	30–49	50–99	100–199	200–299	300–999	1,000 and over	Total herds	
Nil	430	152	86	81	82	45	25	47	90	1,038	7,529
1– 9	86	10	3	1	2	....	....	....	....	102	441
10– 19	91	19	5	8	3	....	....	....	....	126	340
20– 29	57	28	11	9	2	....	....	....	....	107	289
30– 49	87	62	28	23	9	3	....	1	....	213	474
50– 69	58	66	38	32	12	....	....	....	2	208	439
70– 99	77	77	40	52	20	3	....	....	....	269	568
100– 149	173	91	68	94	96	13	2	2	....	539	1,136
150– 199	123	70	50	82	111	32	....	3	....	471	945
200– 299	167	119	82	115	169	85	16	....	1	754	1,494
300– 399	135	82	36	92	133	99	13	2	....	592	1,115
400– 499	99	51	43	59	82	87	18	5	....	444	920
500– 699	189	70	46	80	162	113	54	25	....	739	1,534
700– 999	238	89	74	108	119	103	40	26	....	797	1,665
1,000–1,999	363	156	126	167	220	121	50	80	2	1,285	2,814
2,000 and over	144	32	55	73	126	86	36	56	12	620	1,150
Total	2,517	1,174	791	1,076	1,348	790	254	247	107	8,304	22,853

Slaughtering

LIVESTOCK SLAUGHTERED AND MEAT PRODUCED

Year	Livestock slaughtered (*a*)								Meat produced (*b*)	
	Sheep		Lambs		Cattle		Calves		Mutton and lamb	Beef and veal
	Number	Gross value (*c*)	Number	Gross value (*c*)	Number	Gross value (*c*)	Number	Gross value (*c*)		
	'000	$'000	'000	$'000	'000	$'000	'000	$'000	tons	tons
1963-64	1,288	7,819	859	6,196	341	19,863	34	831	36,690	66,025
1964-65	1,280	7,010	787	6,332	300	21,376	28	837	35,839	56,983
1965-66	1,696	9,293	858	7,293	299	27,524	16	721	44,695	58,089
1966-67	1,695	8,912	905	6,829	284	25,836	17	734	46,381	54,811
1967-68	2,036	8,418	1,165	7,177	309	27,750	24	958	55,059	59,249

(*a*) Mainly slaughterings for human consumption but also includes small numbers of livestock slaughtered for boiling down. Details of pigs slaughtered and production of pigmeat are shown on page 363. (*b*) Dressed carcass weight; excludes condemned carcasses and offal. (*c*) Value 'on hoof' at principal market.

The previous table gives details of slaughterings in abattoirs, butcheries and on stations and farms. A table showing particulars of pigs slaughtered and pigmeat produced appears on page 363.

Beef from cattle slaughtered at Wyndham, Broome and Derby in the Kimberley Division is principally for export. The local market for meat is supplied mainly from abattoirs at Midland, Fremantle, Waroona, Harvey, Bunbury, Albany, Geraldton, Wooroloo and Kalgoorlie but most of these establishments also slaughter for the export trade. Small establishments operating in country towns also contribute substantially to total production, and most stations and many farms slaughter sufficient for all or part of their own requirements.

DAIRYING

Compared with the wheat, wool and meat producing industries, dairying as a major well-organised rural activity is of fairly recent origin. Its growth was retarded initially by the difficulty of clearing heavily-timbered country in the South-West and the need for special methods of pasture establishment, but these problems have been progressively overcome and dairying is now a significant feature of primary production, although only limited development has taken place in recent years.

Until the establishment of the first butter factory at Busselton in 1898, dairy farming in Western Australia was essentially for the production of whole milk, although small quantities of farm butter were marketed. As more factories commenced processing, the industry steadily developed and its growth was further stimulated by the establishment of irrigation areas, the first at Harvey in 1916, and by the introduction of the Group Settlement Scheme in 1921. Another important factor in increasing production was the successful establishment of subterranean clover which resulted in a marked improvement in pastures.

The industry has been assisted by the extensive experimental work carried out by the Department of Agriculture and the advisory service which it provides on all aspects of dairy farming.

Price instability has been one of the major difficulties of the industry and in 1926 the ' Paterson Plan ', which was a voluntary scheme of price stabilisation, was introduced. It met with considerable success but weaknesses finally became apparent and it was abandoned in 1934 in favour of the Dairy Products Marketing Regulation Act passed by the State Parliament. On 1 April 1946, Western Australia entered the voluntary butter price equalisation scheme, operated since 1936 by the Commonwealth Dairy Produce Equalisation Committee Limited, and in January 1947 the State extended its participation to include cheese. The Committee, which comprises certain members of the State Dairy Products Boards and other persons representing the industry, enters into agreements with manufacturers to secure to them equal rates from sales of butter and also of cheese, and for this purpose may fix basic prices at which these products sold in Australia or abroad are to be taken into account. The effect is that local and export trade are distributed among manufacturers in equitable proportions. The Committee fixes basic prices and equalises returns to factories through an Equalisation Fund. In addition, subsidies provided by the Commonwealth Government are distributed by the Committee, through factories to dairy farmers, by payments on butter and cheese manufactured. The fourth five-year stabilisation plan, which came into operation on 1 July 1967, provides a fixed bounty of $27 million annually for the Australian industry. The average subsidy rates per cwt in 1967-68 were $6·31 on butter and $2·38 on cheese.

From 1942 until 30 June 1948, and again from 1 July 1949 to 30 June 1952, a subsidy was paid by the Commonwealth Government on milk supplied for the manufacture of processed milk products. By means of the *Processed Milk Products Bounty Act* 1962, the Commonwealth provided for payment of a maximum amount of $700,000 as a bounty on exports of processed milk products during the year ended 30 June 1963. For the purpose of the Act, processed milk products are goods containing butterfat and produced

from cow's milk, but excluding butter, cheese and certain other specified goods. By later amendments to the Act, bounty was continued up to a maximum of $1,000,000 in respect of exports during 1963-64 and of $800,000 on those for 1964-65. Subsequent amendments extend the operations of the Act until 30 June 1972, the maximum amount of bounty payable each year being maintained at $800,000.

The following table shows the numbers of cattle kept for milk production on rural holdings at 31 March 1965 to 1968.

CATTLE FOR MILK PRODUCTION

Particulars	At 31 March—			
	1965	1966	1967	1968
	number	number	number	number
Bulls of dairy breeds used or intended for service—				
Aged one year and over	4,848	4,438	3,324	3,087
Calves (aged under one year)	1,671	1,429	1,615	1,301
Total	6,519	5,867	4,939	4,388
Cattle used or intended for production of—				
Milk or cream for sale—				
Cows—In milk	43,917	42,777	38,691	39,552
Dry	69,098	66,514	64,229	59,995
Heifers—Springing (within 3 months of calving)	25,662	24,290	21,509	21,145
Other (aged one year and over)	30,211	27,778	28,395	28,479
Calves (aged under one year)	33,479	32,051	31,941	29,536
Milk or cream for use on rural holdings—				
House cows and heifers	11,137	10,182	9,426	8,903
Total	213,504	203,592	194,191	187,610
Total cattle for milk production	220,023	209,459	199,130	191,998

In the next two tables herds of cattle kept for milk production at 31 March 1966, in size groups, are classified according to the size of the holding and the area of established pasture. Of the 22,853 rural holdings of all types, cattle for milk production were carried on 3,685. Holdings of between 1,000 and 5,000 acres accounted for 25 per cent of the herds but 79 per cent of these herds had less than ten head each. All holdings with less than ten head accounted for 38 per cent of the herds in the State. Of the holdings carrying cattle for milk production 3,375, or 92 per cent, had some established pasture and 1,971, or 53 per cent, had 200 acres and over.

CATTLE FOR MILK PRODUCTION (*a*) AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1–4	5–9	10–19	20–39	40–59	60–79	80–99	100–149	150 and over	Total herds	
1– 19	58	12	3	2	....	....	....	....	....	75	2,799
20– 29	15	11	2	2	....	....	....	....	....	30	586
30– 49	26	6	12	6	....	....	....	....	....	50	530
50– 69	16	7	10	8	5	....	....	1	1	48	320
70– 99	20	8	13	22	8	8	....	....	1	80	318
100– 149	23	9	12	72	46	29	8	6	....	205	661
150– 199	35	10	18	55	58	48	22	8	4	258	590
200– 299	48	3	17	67	110	132	72	55	12	516	1,058
300– 399	35	4	12	40	79	83	54	80	22	409	837
400– 499	28	3	5	19	38	41	43	68	37	282	632
500– 699	52	3	3	20	35	62	41	90	58	364	1,039
700– 999	62	6	4	14	26	23	23	52	54	264	1,177
1,000–1,399	76	13	10	6	5	14	14	20	29	187	1,501
1,400–1,999	152	11	6	1	4	3	7	6	27	217	2,082
2,000–4,999	454	25	5	2	5	4	2	3	16	516	6,454
5,000 and over	160	11	4	1	1	2	1	1	3	184	2,269
Total	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(*a*) Excludes herds with no cattle for milk production other than house cows.

CATTLE FOR MILK PRODUCTION (*a*) AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HERD AND AREA OF ESTABLISHED PASTURE

Area of established pasture (acres)	Size of cattle herd (numbers)										Total, all rural holdings
	1–4	5–9	10–19	20–39	40–59	60–79	80–99	100–149	150 and over	Total herds	
Nil	227	20	15	12	9	14	5	3	5	310	7,529
1– 9	31	3	....	....	1	....	....	1	....	36	441
10– 19	28	15	5	4	1	1	....	....	....	54	340
20– 29	21	10	9	2	2	1	....	1	1	47	289
30– 49	33	10	23	16	4	4	1	3	....	94	474
50– 69	34	6	21	37	11	6	1	1	....	117	439
70– 99	28	7	16	78	34	15	4	1	3	186	568
100– 149	69	11	9	103	134	88	23	11	1	449	1,136
150– 199	34	3	8	26	111	140	61	29	9	421	945
200– 299	75	4	9	26	68	108	94	124	24	532	1,494
300– 399	66	7	1	14	19	41	58	98	47	351	1,115
400– 499	61	1	4	9	12	8	20	58	42	215	920
500– 699	98	8	5	8	7	13	13	41	64	257	1,534
700– 999	126	16	4	....	5	7	7	14	33	212	1,665
1,000–1,999	220	13	5	1	1	2	....	5	32	279	2,814
2,000 and over	109	8	2	1	1	1	....	....	3	125	1,150
Total	1,260	142	136	337	420	449	287	390	264	3,685	22,853

(*a*) Excludes herds with no cattle for milk production other than house cows.

The quantity and gross value of whole milk produced in each of the years 1963-64 to 1967-68 are given in the following table.

WHOLE MILK PRODUCTION (*a*)

Particulars	1963–64	1964–65	1965–66	1966–67	1967-68
Quantity '000 gal	57,162	61,883	61,865	55,611	55,411
Gross value (*b*) $'000	14,333	15,819	16,220	15,087	15,335

(*a*) Year ended 30 June. Includes milk used for processing into butter, cheese and condensery products. Details of butter and cheese production appear in Part 2 of this Chapter. (*b*) Includes subsidy paid by Commonwealth Government.

Pig Raising

For many years the rearing of pigs has been carried on in conjunction with the production of butterfat as cream, thus providing a practical means of using the skim milk obtained. This is now on the decline, however, owing to the current trend for whole milk to be supplied in bulk by the dairy farmers direct to processing plants. In the main, pigs are now raised on grain-growing holdings and in 1968 almost 70 per cent of the pigs in the State were in the wheat belt. There are also a number of farmers in the districts around Perth who specialise in pig raising and in fattening for market pigs obtained from country areas.

The principal breeds in Western Australia are the Berkshire, Large White and Landrace and crosses of these breeds. Pigs are reared for bacon and ham as well as pork and, although the greater proportion of production is consumed locally, there is some export trade, mainly to other Australian States. In 1967-68 a total of 950,800 lb of pork was shipped interstate and 254,095 lb overseas, mainly to Singapore, Hong Kong, Christmas Island (Indian Ocean), the Trucial States and Bahrein.

In two tables on page 362 pig herds at 31 March 1966, in size groups, are classified according to the size of the holding and the size of the herd of cattle for milk production on the holding. Of the 22,853 rural holdings of all types, pigs were carried on 3,537. Holdings with between 1,000 and 5,000 acres of land accounted for 54 per cent of the pig herds and those which carried less than fifteen head for 34 per cent of the herds. Of the holdings carrying pigs 1,033, or 29 per cent, had some cattle for milk production and 629, or 18 per cent, had ten or more cattle for milk production.

PIG HERDS AT 31 MARCH 1966
CLASSIFIED ACCORDING TO SIZE OF HOLDING AND SIZE OF HERD

Size of holding (acres)	Size of pig herd (numbers)										Total, all rural holdings
	1–4	5–9	10–14	15–19	20–29	30–39	40–49	50–99	100 and over	Total herds	
1– 19	23	19	8	7	10	6	5	20	22	120	2,799
20– 29	7	1	6	4	....	2	2	4	9	35	586
30– 49	12	5	2	4	9	4	....	10	8	54	530
50– 69	9	8	1	1	7	2	2	4	3	37	320
70– 99	17	3	2	2	7	4	2	8	4	49	318
100– 149	27	5	9	9	5	9	6	22	9	101	661
150– 199	22	11	10	3	13	8	5	11	5	88	590
200– 299	35	33	23	21	25	5	8	24	8	182	1,058
300– 399	19	16	13	12	28	11	9	16	8	132	837
400– 499	18	14	10	12	10	10	6	16	4	100	632
500– 699	23	19	17	14	21	21	10	21	5	151	1,039
700– 999	24	25	18	13	25	28	9	28	7	177	1,177
1,000–1,399	23	30	35	21	29	27	18	42	15	240	1,501
1,400–1,999	46	40	45	40	64	50	35	65	21	406	2,082
2,000–4,999	107	112	131	120	223	161	93	238	83	1,268	6,454
5,000 and over	35	31	41	15	57	52	35	88	43	397	2,269
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

PIG HERDS AT 31 MARCH 1966, ACCORDING TO SIZE OF HERD OF CATTLE FOR MILK PRODUCTION AND SIZE OF PIG HERD

Size of herd of cattle for milk production (numbers)	Size of pig herd (numbers)										Total, all rural holdings
	1–4	5–9	10–14	15–19	20–29	30–39	40–49	50–99	100 and over	Total herds	
Nil	287	238	260	203	396	289	178	450	203	2,504	19,168
1– 4	46	42	34	30	42	43	28	69	30	364	1,260
5– 9	8	2	7	7	6	2	1	4	3	40	142
10– 14	6	2	....	1	1	4	1	3	....	18	68
15– 19	2	1	....	1	5	2	2	4	....	17	68
20– 29	12	9	4	4	7	1	....	3	....	40	152
30– 39	13	9	6	6	7	5	1	9	....	56	185
40– 49	14	9	10	7	12	4	1	3	....	60	210
50– 59	5	13	12	10	12	8	4	6	2	72	210
60– 69	14	8	11	6	15	4	4	5	1	68	244
70– 79	12	9	7	5	10	4	9	13	6	75	205
80– 89	10	9	5	6	8	8	3	14	1	64	169
90– 99	....	6	4	3	3	5	2	6	1	30	118
100–149	8	10	8	6	9	12	8	23	5	89	390
150–199	6	1	1	2	....	7	2	3	....	22	133
200 and over	4	4	2	1	....	2	1	2	2	18	131
Total	447	372	371	298	533	400	245	617	254	3,537	22,853

In the table below, the numbers of pigs on rural holdings at 31 March are shown for each of the years 1964 to 1968. The number of pigs at 31 March 1968 was 182,507, a significant increase over the previous year and the highest figure since 1940 when the total reached a record 217,910.

PIG NUMBERS

At 31 March—	Boars	Breeding sows	Other pigs (*a*)	Total
1964	2,951	17,947	107,242	128,140
1965	3,098	19,250	114,844	137,192
1966	3,110	20,696	120,216	144,022
1967	3,302	23,652	134,029	160,983
1968	3,653	26,913	151,941	182,507

(*a*) Includes baconers, porkers, suckers, weaners and slips.

The next table shows the numbers and gross value of pigs slaughtered in each of the years 1963-64 to 1967-68, together with the quantity of meat produced. Factory production of bacon and ham is also shown.

PIGS SLAUGHTERED (*a*) AND MEAT PRODUCED

Year	Pigs slaughtered		Pigmeat produced (*c*)	Bacon and ham produced (*d*)
	Number	Gross value (*b*)		
		$'000	'000 lb	'000 lb
1963–64	185,222	5,118	22,066	8,468
1964–65	182,822	5,915	22,089	8,921
1965–66	195,439	5,953	23,395	9,605
1966–67	214,637	6,021	25,948	10,259
1967–68	243,312	7,809	29,476	11,404

(*a*) Comprises slaughterings in abattoirs, butcheries and on stations and farms. (*b*) Value 'on hoof' at principal market or at factory door. (*c*) Dressed carcass weight; excludes offal but includes quantities used to produce bacon and ham. (*d*) Factory production.

LIVESTOCK IN AUSTRALIA

The following table gives details of livestock numbers in each State and Territory of Australia at 31 March 1968.

LIVESTOCK NUMBERS AT 31 MARCH 1968—AUSTRALIA
(Thousands)

State or Territory	Sheep	Cattle				Pigs
		Bulls (1 year and over) used or intended for service	For production of milk or cream	Mainly for meat production	Total	
New South Wales	67,786	85	1,019	3,450	4,555	645
Victoria	27,909	76	1,910	1,489	3,474	377
Queensland	19,948	134	818	6,409	7,361	520
South Australia	16,405	16	224	455	695	242
Western Australia	30,161	26	188	1,213	1,427	183
Tasmania	4,428	10	246	308	564	87
Northern Territory	(*a*) 9	(*a*) 34	1	(*a*) 1,095	(*b*) 1,130	2
Australian Capital Territory	267	(*c*)	2	10	13	(*c*)
Australia	(*b*) 166,912	(*b*) 381	4,407	(*b*) 14,431	(*b*) 19,218	2,056

(*a*) At 30 June 1968. (*b*) See footnote (*a*). (*c*) Less than 500.

POULTRY FARMING

Poultry farming in Western Australia is now mainly a specialist industry and a large proportion of the egg production is on holdings which carry sufficient birds to make the activity the sole or predominant source of income. Most of the commercial poultry farms are situated in the Perth Statistical Division, within a thirty-mile radius of Perth, but birds are also kept for commercial production on orchards, dairy farms and wheat farms throughout the agricultural areas.

On specialist poultry farms modern developments in breeding, sexing and nutrition have resulted in considerably higher egg production per bird. Egg-producing birds are largely first-cross hens, bred mainly from White Leghorn cocks and Australorp hens. Production of poultry meat has increased considerably in recent years. It is now predominantly a specialised industry using strains of birds which have been developed specifically for meat production.

Under the *Marketing of Eggs Act, 1945-1969*, all producers in the South-West Land Division are required to market their eggs either through the Western Australian Egg Marketing Board or under the permit system which is administered by the Board. The principal purpose of this legislation is to ensure satisfactory disposal of eggs, including that surplus over local requirements which is consistently produced and which must be sold overseas at prices which usually do not offer a reasonable return to the producer. In order to provide a fund with which to equalise returns from local and export sales the

Board, prior to 1 July 1965, made a charge on all eggs sold locally. This charge has now been replaced by a levy imposed by Commonwealth legislation which came into operation on 1 July 1965.

The *Poultry Industry Levy Act* 1965-1966 provides for the imposition throughout Australia of a levy on hens not less than six months old kept for commercial purposes. Special exemptions are made in respect of 'broiler breeder hens', being hens used to produce chickens for table purposes. The levy, which does not apply to flocks of fewer than twenty-one hens, nor to the first twenty hens in any flock, is payable fortnightly and may not exceed $1 annually per bird. It commenced on 1 July 1965 at a rate of 2·71c per fortnight for each hen. Subsequently, the levy was increased and reached the maximum permitted by the Act ($1 annually per hen) in 1966-67 and 1967-68. In July 1969 the levy stood at 4·00c per fortnight for each hen.

Under the *Poultry Industry Levy Collection Act* 1965-1966 the authority responsible for the collection of the levy in this State is the Western Australian Egg Marketing Board. The *Poultry Industry Assistance Act* 1965-1966 establishes a Poultry Industry Trust Fund for the receipt of the amount of the levy and other moneys. The Act provides for payment from the Fund to a State, by way of financial assistance, of such amounts as the Commonwealth Minister may determine upon the recommendation of The Council of Egg Marketing Authorities of Australia.

Although the Commonwealth levy replaces the egg equalisation levies formerly imposed by the several State authorities for the purpose of equalising returns from local markets and export sales, the State authorities continue to make charges necessary to defray the costs of handling, grading and marketing of eggs.

In 1967-68 Saudi Arabia, Kuwait, the Bahrain Islands, the Trucial States, Qatar and the United Kingdom were the most important overseas markets for eggs in the shell. Exports of egg pulp in 1967-68 were valued at $14,197.

POULTRY NUMBERS (*a*)

At 31 March—	Fowls	Ducks	Turkeys	Geese
1964	1,613,079	10,094	7,495	749
1965	2,006,988	7,851	10,005	643
1966	1,914,759	15,729	15,621	1,190
1967	2,460,144	25,831	22,678	6,692
1968	2,865,676	30,254	23,225	(*b*)

(*a*) Figures for 1967 and 1968 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years. (*b*) Not available.

EGGS SOLD AND POULTRY SLAUGHTERED FOR TABLE PURPOSES

Year ended 31 March—	Eggs sold (*a*)		Poultry slaughtered for table purposes
	Quantity	Gross value	Gross value (*b*)
	'000 dozen	$'000	$'000
1964	8,092	3,719	2,661
1965	8,627	3,884	3,139
1966	10,063	4,735	3,666
1967	9,603	4,863	4,922
1968	10,946	4,811	5,501

(*a*) Figures for 1967 and 1968 include details of poultry for non-commercial purposes on rural holdings which are excluded in previous years. (*b*) Year ended 30 June.

BEE KEEPING

Commercial producers of honey in Western Australia may be divided into three categories. There are a comparatively small number of specialist apiarists, engaged solely or mainly in honey production, who operate on a large scale and transport their hives from district to district. There are also some substantial producers who are engaged in agricultural activities and use their farms as a central site from which they may transport their hives

to other areas as necessary. Finally there are the many farmers and orchardists who keep a few hives and produce honey as a minor supplementary activity. This pattern of production is illustrated by the following table.

BEE KEEPERS, BEEHIVES AND HONEY PRODUCTION (*a*)—1967-68

Classification of hives (*a*)	Bee keepers (*b*)		Productive beehives (*c*)		Honey production	
	Number	Proportion of total (per cent)	Number	Proportion of total (per cent)	Quantity	Proportion of total (per cent)
					lb	
5– 19	199	44·03	719	1·89	22,788	0·67
20– 49	102	22·57	940	2·48	43,859	1·29
50– 99	35	7·74	1,104	2·91	58,671	1·72
100–199	42	9·29	3,620	9·54	192,696	5·65
200–299	20	4·42	3,675	9·68	267,432	7·84
300–499	26	5·75	9,270	24·42	890,383	26·11
500–799	20	4·42	11,002	28·98	1,076,620	31·58
800 and over	8	1·77	7,630	20·10	857,150	25·14
Total	452	100·00	37,960	100·00	(*d*)3,409,599	100 00

(*a*) Excludes details of bee keepers with less than five hives. (*b*) At 30 June 1968. (*c*) Represents the number of hives at 30 June 1968 from which honey was taken during the year and excludes hives kept for production but from which no honey was taken, nuclei, pollination hives, etc. (*d*) Lowest recorded since 1954–55.

In 1967-68 exports of honey totalled 2,277,066 lb, the export value being $321,346. The principal buyers were the United Kingdom, which purchased 750,400 lb, the Federal Republic of Germany 327,040 lb, and Denmark 215,040 lb.

BEEHIVES AND PRODUCTION OF HONEY AND BEES-WAX (*a*)

Year	Beehives (*b*)		Honey production		Bees-wax production	
	Productive (*c*)	Unproductive (*d*)	Quantity	Gross value	Quantity	Gross value
	number	number	'000 lb	$'000	'000 lb	$'000
1963–64	39,924	9,480	8,510	860	103	34
1964–65	39,323	9,539	8,066	520	106	42
1965–66	41,749	8,782	10,923	650	138	52
1966–67	40,830	10,402	6,882	440	99	44
1967–68	37,960	10,823	(*e*) 3,410	212	49	27

(*a*) Excludes particulars of bee keepers with less than five hives. (*b*) Number at 30 June. (*c*) Hives from which honey was taken during the year. (*d*) Includes hives kept for production but from which no honey was taken during the year, nuclei, pollination hives, etc. (*e*) Lowest recorded since 1954–55.

THE DEPARTMENT OF AGRICULTURE

Brief references have been made earlier in this Part to the important services rendered to rural producers by the Department of Agriculture. The Department is the branch of the State Government Service responsible for bringing scientific advice to farmers and pastoralists, for carrying out research into a wide range of technical problems and for administering Acts of Parliament dealing with agricultural and pastoral matters. Its activities can be classified under the four headings: investigation or research; advisory, now more commonly called 'extension' functions; provision of certain services for the assistance of the man on the land; and regulatory work which consists of carrying out the provisions of some of the laws relating to agriculture.

The operations of the Department are organised under a series of Divisions and Branches, the heads of which are responsible to the Director of Agriculture. The Divisions are Animal (including Animal Health and Nutrition Laboratory and sections for Veterinary Services, Animal Husbandry, Apiculture, Poultry and Brands), Wheat and Sheep (including the Cereal Products and Fleece Testing Laboratories), Dairy, Horticulture (covering Fruit and Vegetables), Soils (including Soil Conservation and Irrigation), Plant Research, Biological Services (including Plant Pathology, Entomology, Botany,

Seed Certification and Weed Control), and North-West. In addition there are separate sections covering Rural Economics and Marketing, Information, Abattoirs and Library and close liaison is maintained with the Agriculture Protection Board. Muresk Agricultural College was formerly controlled and staffed by the Department but, as from 1 January 1969, the College became part of The Western Australian Institute of Technology.

Sections of government administration known as Departments of Agriculture usually originated in the demands of farmers for government assistance in coping with their technical problems. The Western Australian Department of Agriculture had its origin in a Bureau of Agriculture which was formed in 1894. In 1898 the Department of Agriculture was established and absorbed the staff of the Bureau. Up to this time, some seventy years after the first settlement, agriculture in Western Australia had made little progress. The area of cleared arable land was less than 2 per cent of the present area. Superphosphate had not been used on Western Australian farms and wheat varieties suitable for the drier districts to the east of Northam were not then available. There was little comprehension of the many problems associated with land development and not much public appreciation of the part that science might play in solving them.

From small beginnings the Department's responsibilities and activities extended as agriculture developed. In the first quarter of a century of its existence, expansion and consolidation of farming in the wheat belt overshadowed other activities. That was only natural, as the acreage of wheat for grain expanded from 200,000 in 1905 to nearly 4 million acres in 1930, and for much of that time the State's development was synonymous with wheat belt expansion.

State Farms and Research Stations

Perhaps the most important work in the Department's first ten or fifteen years was that concerned with the establishment of experiment farms, or ' State farms ' as they were at first called. The first of these had its origin in plots which were established at Hamel in 1896. Valuable work was carried on at this centre for nearly twenty years in connection with the growing of potatoes, fruit, cereals, hops, fodder crops and pasture, and some success was achieved with wheat breeding.

Government farms were opened at Narrogin in 1901 and at Nabawa, twenty-five miles north of Geraldton, in 1902. In 1907 a farm at Nangeenan, near Merredin, was taken over from the Lands Department and is now the Merredin Research Station. In the same year a farm was established in the South-West at Brunswick in order to provide object lessons in dairying, as it was felt that there were great possibilities of expanding the dairying industry. After functioning for several years this farm was closed and the land was subsequently used for closer settlement purposes.

In 1911 a change was made in the policy of the government farms in the wheat belt and their character changed from ' experimental ' to ' experiment ' farms and ultimately to ' research stations '. Instead of being conducted mainly with the object of producing revenue they were to be used primarily for collecting information concerning local conditions that would be of value to the district. In addition, wheat, oats and barley were bred and pure pedigree seed produced. It would be difficult to over-estimate the subsequent value of the farms in this new role, which is still one of their most important functions. In later years more research stations were established and they now number twenty-two.

Research stations at Nabawa, Badgingarra, Wongan Hills, Merredin, Beverley, Mount Barker, Newdegate, Salmon Gums and Gibson deal with agriculture in the cereal-growing and sheep-raising districts and stations at Bramley (though dealing mainly with beef cattle), Denmark and Wokalup serve the dairying districts. Vegetable research stations are situated at Medina and Manjimup and a new pig research unit has been established at the Medina station. The poultry industry is served by a station at Herdsman Lake. A viticultural research station has been established at Upper Swan and a horticultural research station at Stoneville in the Darling Range to the east of Perth.

The Kimberley Research Station, operated in conjunction with the Commonwealth Scientific and Industrial Research Organization, is concerned with problems of irrigation in relation to agriculture in the tropics, with particular reference to the agricultural settlement now taking place on the Ord River. The Fitzroy Pastoral Research Station in West Kimberley, which will study problems of the beef cattle industry, is nearing completion. At Abydos, near Port Hedland, regeneration of overgrazed pastoral country and a study of sheep breeding problems are the main concerns. At the Gascoyne Research Station at Carnarvon, problems of growing tropical fruits and winter vegetables, and pastoral problems in the area are being investigated. The Wiluna Groundwater Research Station is for the study of the controlled use of underground water supplies, lucerne growing and sheep feeding problems.

Advisory Services

Extension work is perhaps the Department's most important function and has exercised a powerful influence in publicising and accelerating the adoption of better farming methods. It is difficult to assess the results of any educational undertaking in terms of money, but the desirability of having a well-informed farming community, receptive to new ideas, is obvious. Although the best method of taking advice to farmers is for the technical officer to visit farms for discussion with the farmer on his own property, this is unfortunately not always possible as an officer may have between 500 and 1,000 farms in his district. Individual visits often have to be restricted to cases where a specific request has been made or where some urgent action is required.

Extension officers support and foster the formation of farmers' organisations such as Pasture Groups and attend meetings and field days where talks can be given to groups of farmers. It is estimated that in the past year over 8,000 farmers attended nearly 160 field days with which the Department was associated. Field experiments, both at the stations and on farmers' properties, form an excellent basis for demonstrations and talks. The various competitions in which extension officers act as judges provide another means of bringing farmers together for discussion. These competitions are generally concerned with crops and pastures but may include other types such as those conducted by Junior Farmers' Clubs for show exhibits and for debates. Extensive use is made of the radio which, in Western Australia, probably reaches more people than does any other medium. Between 200 and 300 broadcasts are given by departmental officers each year and in addition to a weekly press service a series of television programmes is prepared. In addition, the Department produces several publications including a monthly *Journal of Agriculture*, which has a circulation of about 20,000, special quarterly publications for dairy farmers and bee keepers, and bulletins covering a wide range of subjects.

Advisory work is not concentrated in a single Division but is carried out by several Divisions and Branches of the Department. In recent years to decentralise the work of the Department, groups of officers have been stationed at Albany, Armadale, Bridgetown, Broome, Bunbury, Busselton, Denmark, Derby, Esperance, Geraldton, Harvey, Jerramungup, Kalamunda, Kalgoorlie, Katanning, Kununurra, Lake Grace, Manjimup, Margaret River, Merredin, Midland, Moora, Mount Barker, Narrogin, Northam, Three Springs, Wiluna and at the Gascoyne and Kimberley Research Stations. An officer is also stationed at each of the following places: Camballin, Donnybrook, Gosnells, Kellerberrin, Koorda, Muchea, Mundaring, Narembeen, Pinjarra, Port Hedland, Trayning and Wyndham.

Research Activities

In the field of investigation and research, problems which have been dealt with would comprise a lengthy list and only a few of the more important can be mentioned here. The value to the State of cereal-breeding activities is well known. Cereal varieties produced by the Department have increased the income of farmers by many millions of dollars over the years in which they have been grown. The introduction of new plant

species and varieties, the evaluation of their suitability for local conditions and the determination of rotations for improving yields and maintaining soil fertility are important features of the work in cereal-growing districts.

Research into plant diseases and deficiencies forms another important section of the Department's investigational work. Considerable success has been achieved in the recognition and remedying of deficiencies of trace elements in soils, notably of copper, zinc and molybdenum. As a result of this work, fertilisers containing trace elements have been applied in recent years to extensive areas of the State's farming land. These investigations, together with allied work on superphosphate and sulphur and the establishment of subterranean clover pastures, constitute the technical factors which have made possible the rapid post-war expansion of light land development.

In the pastoral areas of the North-West the sheep-carrying capacity of large tracts of country has been seriously reduced by drought and overgrazing. Recent work by officers of the Department has shown that much of this country can be reclaimed by adopting systems of grazing management different from those employed in the past.

Nutritional disorders and diseases of farm animals cause considerable loss to farmers and pastoralists. Some of the Department's most notable successes have been achieved when dealing with problems in this field, which include enzootic ataxia, enterotoxaemia, toxic paralysis, clover disease in sheep, copper and cobalt deficiencies in cattle, contagious pleuro-pneumonia, Kimberley horse disease, plant poisoning of stock and infertility in dairy cows. Problems of sheep infertility, of lupinosis, brucellosis in sheep and in beef herds in the South-West and of mastitis in dairy cows are among investigations at present in progress.

A soil conservation service was established in the Department in 1947. Since then a great deal of information about the incidence and nature of erosion has been collected and many farmers have been assisted with their erosion problems. Considerable attention has also been given to the salt problem in the agricultural districts.

In somewhat more restricted fields the use of a hormone spray instead of cincturing, for currant vines, is a noteworthy change in agricultural practice resulting from investigations by the Department. The selection of the rust-resistant runner bean variety, 'Westralia', has greatly reduced one of the hazards with which the bean grower has to contend.

Agriculture Protection

For the control, prevention and eradication of noxious weeds and vermin, there is an Agriculture Protection Board which operates in collaboration with the Department of Agriculture.

The Board, which was established in 1951 following recommendations by a Royal Commission, is constituted under the provisions of the *Agriculture Protection Board Act, 1950-1964*, and comprises the Director of Agriculture or his deputy, as Chairman; the Chief Vermin Control Officer of the Department of Agriculture; an officer of the State Treasury; two representatives of the agricultural industry; one representative of the pastoral industry; and five representatives of local government authorities.

The income of the Board consists of appropriations from the Consolidated Revenue Fund and other moneys as prescribed by the Agriculture Protection Board Act.

For the purposes of the Agriculture Protection Board Act, the term 'noxious weeds' means those plants which are so proclaimed or declared under the *Noxious Weeds Act, 1950-1969*. 'Vermin' means any animal, bird or insect proclaimed to be vermin as provided by the *Vermin Act, 1918-1965*, and includes rabbits, foxes, dingoes, sparrows, emus, starlings, Argentine Ants and grasshoppers.

The Board formulates policies for the control, prevention and eradication of noxious weeds and vermin, advises on methods, directs and assists in general operations, provides services to help local government authorities and landholders in destruction work and



TIMBER HAULING IN THE SOUTH-WEST

The State's principal timber is Jarrah which covers over 3 million acres of the State Forests. Karri is next in importance and is distributed over some 800,000 acres.

Production of sawn timber in 1967-68 amounted to 211·7 million superficial feet valued at $24·1 million.



ROCK LOBSTER FISHERMEN

Fishermen at the Fremantle Fishermen's Harbour are shown preparing pots for the rock lobster (crayfish) season which commences in November each year.

Over 800 boats licensed to catch rock lobsters operate from Fremantle, Geraldton, Port Denison and other anchorages along the coast between Shark Bay and Bunbury. The boats vary in length from less than twenty feet to seventy feet and include freezer boats which process and snap-freeze their catch at sea.

Block by courtesy of The Swan Brewery Company Limited

conducts scientific research and investigations for the improvement of control techniques and policies. Control work extends to Crown lands, including reserves, for the benefit of adjoining landholders.

Improvements in the control of both noxious weeds and vermin have resulted from the activities of the Agriculture Protection Board and there have been some notable successes, including a great reduction in rabbit numbers effected by the use of myxomatosis virus and by organised drives for their destruction, mainly by poisoning.

Other Services

The Department operates certain services which assist the producer to increase his efficiency. Probably the best known is the production of pure pedigree varieties of seed wheat, oats and barley. These are of value to the cereal grower, who is able to obtain his requirements at moderate cost. Sponsoring and supervising the production of approved lines of seed, notably potatoes and beans, has led to the wide use of these specialised lines with a resulting increased yield, and certification of pure lines of pasture seed gives farmers a guarantee of quality in the seed they buy. Assistance to dairy farmers to form herd-testing units, thus enabling them to gauge the performance of their herds, is another service of similar nature. Assistance and technical advice is given to farmers concerned with the installation of irrigation schemes and the preparation of land for irrigation.

The producers who benefit from the services mentioned in this section pay something for them, but not necessarily the full amount of the cost of providing them.

Administration of Acts

The Department of Agriculture is responsible for administering some fifty Acts concerning a wide range of subjects. Some of the more important relate to animal and plant diseases and insect pests, industry trust funds, soil conservation, vermin control, marketing of agricultural products and registration of feeding stuffs, fertilisers and stock brands.

ARTIFICIAL BREEDING BOARD

The Artificial Breeding Board was established under the *Artificial Breeding Board Act, 1965* which came into operation by proclamation on 16 December 1966. The Act provides that the board shall consist of a chairman, vice-chairman and three other members, of whom one shall be a veterinary surgeon. Responsibility for promotion of artificial breeding of stock has been placed in the hands of the Board which, in effect, assumed control of artificial insemination work established in 1956 by the Department of Agriculture at the Wokalup Research Station.

FARM MANAGEMENT SERVICE LABORATORY

The University of Western Australia, by resolution of the Senate, approved the establishment of the Farm Management Service Laboratory within the University in 1966. The aims of the Laboratory are to develop concepts and services in management accounting and planning which are specially suited to the needs of farmers; to make these developments available to farmers; and to use information processed by the Laboratory for teaching and research within the Institute of Agriculture at the University of Western Australia.

The Laboratory hires its own staff and computer time, and pays its own operating expenses. Fees are charged to cover costs, though initially the Laboratory has been drawing on capital grants made to it by various firms and institutions through the John Thomson Agricultural Economics Centre at the Institute of Agriculture.

Services provided by the Laboratory include computer techniques for planning farm businesses and solving farm problems. A set of programmes is being developed to enable farmers to breed for maximum genetic improvement of economically important traits in sheep flocks at least cost. Pilot studies are under way.

Some 450 farmers in Western Australia enrolled to obtain the Managerial Information Service of the Laboratory in its initial year. The service has since been extended to farmers outside this State.

TRAPPING

Although trapping has been carried on from the first years of settlement, it has never been an important industry. In 1967-68 the recorded gross value was only $1,236,000 but reliable and complete information is difficult to obtain and this amount could therefore be deficient.

Kangaroos have been destroyed in great numbers from the earliest days, the principal reason for the organised destruction being the damage done to pastures and fencing. As early as 1849 the export of kangaroo skins for the year was no less than 12,387. Skins are still exported and some are also used in local factories. Kangaroo meat is used as pet food.

The earliest recorded export of rabbit skins relates to the year 1900 and the meat and skins of these animals have been a source of income to trappers ever since. In an attempt to reduce the damage done to crops and pastures, various methods of control have been adopted and since the second World War an intensive campaign, using myxomatosis virus, poisons and warren ripping, has met with considerable success. As a result, the quantity of rabbit meat produced and the number of skins exported and treated locally have declined greatly and are now insignificant.

Wild goats are slaughtered and the meat is exported.

The skins of animals other than marsupials and rabbits, together with exports of Western Australian fauna, are taken into account in the value of the trapping industry (see tables on page 333) but these are not significant.

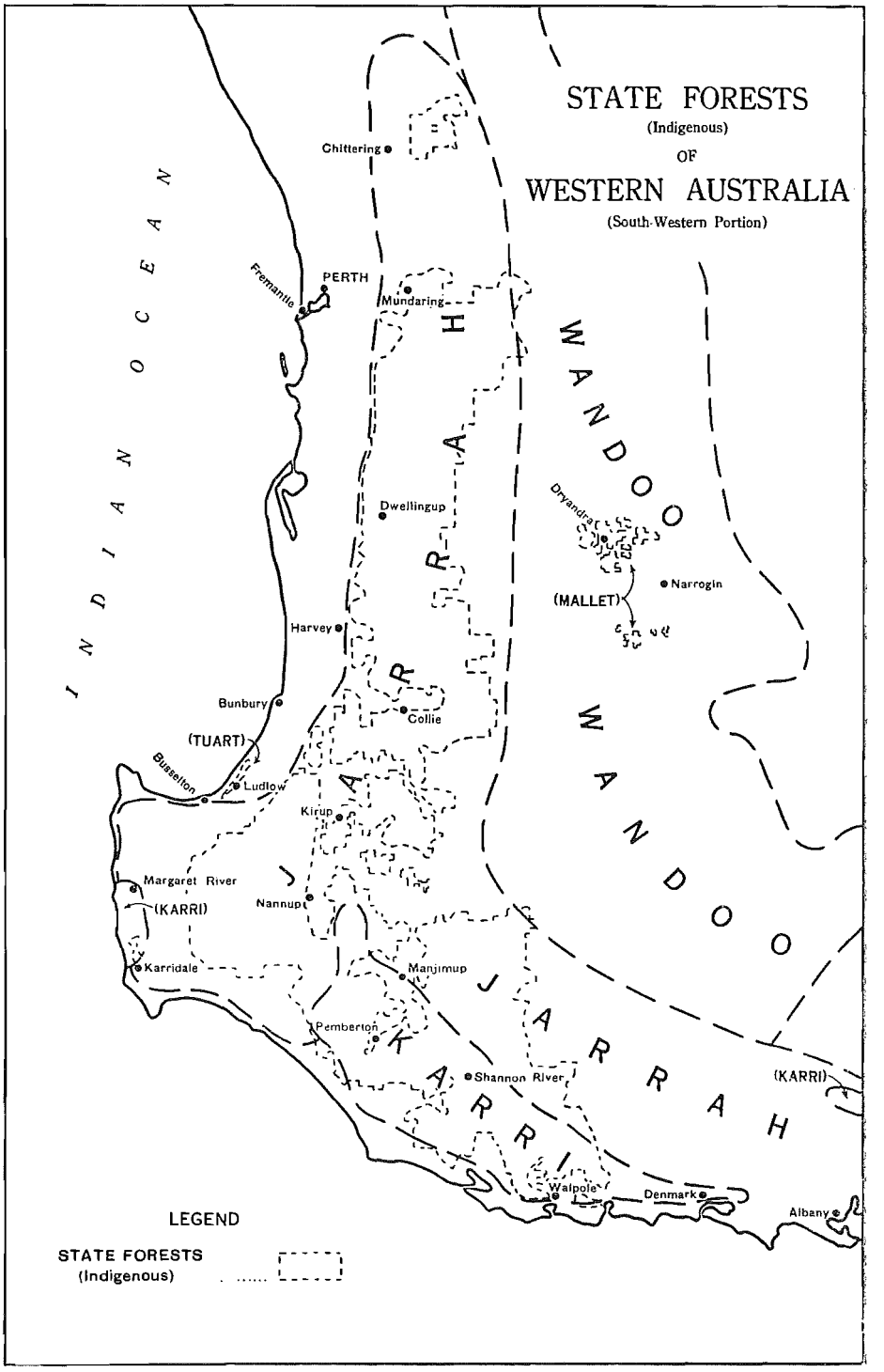
FORESTRY

The Prime Indigenous Forests

Although the prime indigenous forests of Western Australia cover only a small percentage of the area of the State, they are of considerable economic importance. This is not only on account of the durability, strength and general-purpose nature of their hardwood timbers, but also because of their occurrence on the water catchment areas in the high-rainfall and closely-populated section of the State. Being easy to regenerate after cutting, they form a natural and effective protection against soil erosion. Nearly 4·5 million acres have been permanently dedicated as State Forests and approximately 2·5 million acres have been established as Timber Reserves under the Forests Act and the Land Act.

Jarrah (*Eucalyptus marginata*) is the State's principal timber and the prime forest covers over 3 million acres of the State Forests. Karri (*E. diversicolor*) is next in importance and is distributed over some 800,000 acres but only about 20 per cent of it is in pure stands. Wandoo (*E. redunca* var. *elata*) accounts for a smaller portion of the dedicated area and Tuart (*E. gomphocephala*), another valuable timber, has a restricted area of about 6,000 acres. Blackbutt (*E. patens*) occurs in patches throughout the jarrah and karri forests and is an important milling timber with properties and uses similar to jarrah. Marri (*E. calophylla*), the most widespread of the commercial eucalypts, is noted as a pole timber and is now being sawn in increasing quantities for building scantling. Of greatest importance, however, is the potential of marri as a resource for a wood chip or wood pulp industry.

Other eucalypts and many trees of different genera occur within the prime forest belt but they are not of major economic importance. The main distribution of the prime forests, which are practically confined to the south-western portion of the State, is shown on the accompanying map.


STATE FORESTS
(Indigenous)
OF
WESTERN AUSTRALIA
(South-Western Portion)
INDIAN OCEAN
Chittering
PERTH
Fremantle
Mundaring
DARLING RANGE
WANDOO
Dwellingup
Dryandra
Narrogin
(MALLET)
Harvey
Bunbury
Collie
(TUART)
Busselton
Ludlow
Kirup
WANDOO
Margaret River
(KARRI)
Nannup
Karridale
Manjimup
Pemberton
KARRI
JARRAH
Shannon River
(KARRI)
Walpole
Denmark
Albany
LEGEND
STATE FORESTS
(Indigenous)

The Inland Forests

Beyond the area of prime forest is an inland forest of sclerophyllous woodland, within which are a number of eucalypts (both tree and mallee form), as well as several types of *Acacia*, such as as the wattles and mulgas, tea tree (*Melaleuca spp.*) and casuarinas. Sandalwood (*Santalum spicatum*), indigenous to the wheat belt and semi-arid areas of the State, is still exported to Asian countries but is now obtained only from the semi-arid regions.

While none of the inland forest can be classed as suitable for sawmilling in the ordinary sense, it forms an important source of timber for mining and agricultural purposes. During recent years, soil conservation in the regions of low rainfall has received increasing attention and the importance of controlling clearing, grazing and firewood cutting has been recognised. The Forests Department maintains a staff to exercise these controls and to advise on tree planting.

Forestry Administration

Scientific forestry was given considerable impetus in Western Australia with the passing of the Forests Act in 1918. Extensive cutting over the previous fifty years had seriously depleted the State's timber resources and adequate provision had not been made for protection and regeneration. Under the Act, however, wide powers are conferred on the Forests Department, which is granted nine-tenths of the net annual government revenue from forestry sources. The sum received, together with various other grants, is used for regeneration, fire control and associated purposes.

The forests are now managed on a long-range working plan to ensure continuity of the industry, trees being approved for cutting and marked accordingly by trained foresters, who work under the direction of the Conservator of Forests and closely control both the indigenous forest and the mallet and pine plantations. The future productivity of the forests is also safeguarded by ensuring that cutting is carried out in such a way as to protect immature growth and to encourage natural regeneration, which is a very important feature of the Department's policy.

Brown Mallet (*Eucalyptus astringens*), the bark of which has a high tannin content, once covered large areas in the wandoo forest belt (see map on page 371) but was practically exterminated by clearing for farms and by excessive exploitation. Regenerated areas and plantations of mallet now total 19,111 acres and it is unlikely that this total area will increase.

Plantation methods are being employed to grow pines, principally *Pinus pinaster* and *Pinus radiata*, as the State has no indigenous softwoods of commercial significance. Financial assistance granted by the Commonwealth in terms of the *Softwood Forestry Agreements Act* 1967 will enable the State, from 1968, to plant 6,000 acres per annum. Thirteen plantations with a planted area of 59,516 acres have been established and it is planned to provide, ultimately, 240,000 acres of pine forest. Most of the land selected for pine planting is of limited value for agriculture but when used for pines it constitutes a valuable long-term investment, with the prospective development of industries for the manufacture of paper, wallboard and similar products.

Because of the hot, dry summers experienced in most of the areas covered by State Forests, there is a considerable risk of damage by fire and intensive precautions are taken by the Department to minimise this danger. Look-out towers, provided with radio or telephone communication, are manned at strategic points and controlled burning of approximately 900,000 acres per year is carried out during spring and, to a lesser extent, in autumn. Trials of prescribed burning by dropping incendiaries from a low-flying aircraft have proved successful and, during 1968-69, over 484,000 acres were burnt in this way. Restrictions are placed on all burning operations by farmers and other persons when the fire hazard is high and at such times warnings are issued emphasising the danger.

In association with the system of cutting control, various royalties, licence and permit fees are collected as part of the Consolidated Revenue of the State.

Some information concerning forest tenures, the issuing of licences and permits, etc. is given under the heading ' Forests Department' in the section *Methods of Leasing* in Chapter VII, Part 1 and further details appear in the previous issue of the Year Book.

Principal Forest Products

Sawn timber is the principal form of forest production, but there has been a rapid increase in the local use of logs for plywood manufacture during recent years. Karri and, to a lesser extent, locally-grown pine logs are used for this purpose, together with imported logs. Particle board, manufactured from small-size thinnings from coastal plantations of *Pinus pinaster*, is becoming an increasingly important product.

In addition to these major products, the State's forest wealth includes wandoo (the whole tree) and mallet bark for tannin extract, sandalwood for export and as a source of sandalwood oil, firewood for general purposes, and various seeds and plants for propagation both in Australia and abroad. Wandoo and jarrah are used as a source of charcoal for the high-grade charcoal pig-iron produced at Wundowie. The karri, wandoo, marri and some inland species are important nectar producers for apiarists, who move their bees to various forest sites in following the nectar flow.

The following table gives details of sawn and round timber production from 1963-64 to 1967-68. After reaching a figure of 211·6 million superficial feet in 1965-66, sawn timber production declined slightly in 1966-67 but increased in 1967-68 to 211·7 million superficial feet. During the five-year period covered by the table, the output of round timber, which consists mainly of mining timber, piles, poles, fencing posts and rails, ranged between a maximum of 25·9 million superficial feet in 1964-65 and a minimum of 21·2 million superficial feet in 1966-67.

TIMBER PRODUCTION (*a*)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Timber—Sawn .... '000 sup. feet	195,724	207,304	211,638	204,505	211,726
Timber—Round .... '000 sup. feet	23,187	25,950	22,109	21,229	24,448

(*a*) From local logs and includes railway sleepers and plywood veneers.

Sawmilling is dealt with in greater detail under *Secondary Industry* in Part 2 of this Chapter.

In 1967-68 exports of railway sleepers totalled 12·8 million superficial feet, of which 8·0 million went to other Australian States and 4·8 million to overseas markets, principally Jordan, Kenya, South Africa and the United Kingdom. In the same year 15·9 million superficial feet of other timber were exported to other Australian States and 7·0 million were shipped overseas, the principal markets being Kenya, New Zealand, South Africa and the United Kingdom.

FISHERIES (INCLUDING WHALING AND PEARLING)

The fishing industry in Western Australia consists of three distinct activities, the catching of edible species, whaling and pearl-shell production. In addition, pearl culture has been successfully established in recent years.

General Fisheries

Since the end of the second World War, rock lobsters (crayfish) have become the most important item of production of that section of the industry which is concerned with the catching of edible species. Prior to the war there was a small local market for fresh rock lobsters, but in 1941 production was stimulated by canning for the armed forces. Although canning continued until 1950, it had become far less important by 1947 than another development, the freezing of rock lobster tails for export, mainly to the United States of

America. The overseas demand, which developed rapidly in post-war years, gave great impetus to the industry and the take increased almost eightfold between 1947 and 1960-61, when total production of live rock lobsters was 18·0 million lb, valued at $6·01 million to the fishermen. The catch for 1967-68 was 22·0 million lb, the highest ever recorded, the value being $16·9 million. Overseas exports of rock lobster tails in 1967-68 totalled 8·6 million lb, with an f.o.b. value of $18·0 million, the highest ever attained.

The most important commercial species of rock lobsters in Western Australian waters is *Panulirus cygnus*, which occurs off the south-west coast between Murchison River and Bunbury. The principal localities around which rock lobsters are caught are the Abrolhos Islands, Geraldton, Dongara, Beagle Island, Green Head, Jurien Bay, Cervantes, Lancelin, Ledge Point and Fremantle. The industry is protected from overfishing by such measures as the declaration of closed seasons; the proclamation of fishing zones; the prohibition of the taking of lobsters of less than a prescribed size or of female rock lobsters having berry (*i.e.* eggs) attached; requiring that every rock lobster pot shall have an escape gap of specified dimensions; the granting only in special circumstances of new licences for boats for rock lobster-fishing; and limiting the number of pots that a boat may carry or use at any one time. The catch is processed either on specially equipped freezer boats or at shore stations licensed under the *Fisheries Act, 1905-1969* as processing establishments.

In Western Australia, rock lobsters were known as 'crayfish' until the name was amended in State legislation by the *Fisheries Act Amendment Act (No. 2), 1969*. This change of name was subsequently accepted by the Commonwealth Department of Primary Industry who have amended the *Nomenclature of Australian Commercial Marine Fauna and Flora* accordingly.

The large catches of Australian salmon (*Arripis trutta*), which school in the bays on the south and lower south-western coasts, yield a large proportion of the production of inshore and beach fishing and are used almost exclusively for canning. The remainder of the catch from this type of fishing comprises chiefly tailor (*Pomatomus saltator*), sea herring or ruff (*Arripis georgianus*), Western sand whiting (*Sillago schomburgkii*), sea mullet (*Mugil cephalus*) and trevally or skipjack (*Usacaranx georgianus*). This is sold mainly as wet fish on the local market, but large quantities of sea herring are canned and there are some exports, principally of whiting, to the other Australian States.

The coastal waters northward from the mouth of the Murchison River to North West Cape and Exmouth Gulf are the source of several species of commercial importance. Snapper (*Chrysophrys auratus*) are caught between the Murchison River and North West Cape, during the northern schooling season from May to August. Cod and groper, though in smaller quantities, are also caught between the Murchison River and North West Cape. The waters northward from the Murchison River to Bernier Island, west of Carnarvon, yield heavy catches of Westralian jewfish (*Glaucosoma hebraicum*). At Shark Bay a prawn-fishing industry has been successfully established in recent years, the catch being processed at Carnarvon. The species caught are the Western king prawn (*Penaeus latisulcatus*) and the tiger prawn (*P. esculentus*). A prawn fishery has also been established at Exmouth Gulf, the principal species caught in 1967-68 being the tiger prawn and the Western king prawn. Minor quantities of endeavour prawn (*Metapanaeus endeavouri*) and banana prawn (*P. merguiensis*) were also caught. The catch is processed at Learmonth and on freezer boats. As a conservation measure the number of fishing boats licensed to operate has been limited to thirty at Shark Bay and seventeen at Exmouth Gulf. From a catch of 238,937 lb in 1961-62, the production of prawns has increased significantly and in 1967-68 was 3,862,298 lb. Production is expected to increase still further due to the establishment of commercial prawn fishing in the Nickol Bay area, near Roebourne, and because of promising experimental trawling being carried out in other areas along the north and north-west coast.

The first fishing grounds to be exploited were the estuaries and rivers and, although they are not now as important as other grounds, they still provide substantial quantities of fish of a fairly wide variety. The principal species are cobbler (*Cnidoglanis macro-*

cephalus) and yellow-eye mullet (*Aldrichetta forsteri*), most of which are caught in Leschenault and Peel Inlets and the Harvey and Swan estuaries. Other species include garfish (*Hemirhamphus australis*), Perth herring (*Fluvialosa vlaminghi*), sea mullet, tailor, sand whiting, King George whiting (*Sillaginodes punctatus*), and flathead. Crabs (*Portunus pelagicus*), king prawns and other prawns are also caught commercially in these waters.

There are no indigenous inland or freshwater fish of commercial value. A relatively large crustacean, the marron (*Cherax tenuimanus*), occurs in the streams of the lower South-West and some success has been achieved in stocking farm dams with this species. Brown trout, rainbow trout and English perch have been introduced into the streams of the southern districts.

Research work on rock lobsters, Australian salmon, prawns, tuna, whiting, abalone, scallops and whales in Western Australian marine waters is being carried out by the Western Australian Department of Fisheries and Fauna in association with the Commonwealth Scientific and Industrial Research Organization and other State and Commonwealth authorities. A new marine research centre has been built at Waterman, about fourteen miles north of Fremantle, for the Department of Fisheries and Fauna. It incorporates eleven separate laboratories and a large aquarium, with circulating water, for experiments and studies of fish behaviour. Fisheries research workers from the Department of Fisheries and Fauna, the Commonwealth Scientific and Industrial Research Organization and the University of Western Australia are employed at the centre.

The principal species of edible fish are shown in the following table with the quantities of each species caught in the years 1963-64 to 1967-68.

PRODUCTION OF FISH (*a*)

Species—Common name	1963–64	1964–65	1965–66	1966–67 (*)	1967–68
Crustaceans—	lb	lb	lb	lb	lb
Crabs	29,751	27,992	34,526	95,995	68,487
Prawns	2,118,317	1,829,490	2,484,785	3,897,552	3,862,298
Rock lobsters (Crayfish)	17,972,537	16,378,120	17,794,139	18,942,513	22,024,111
Total	20,120,605	18,235,602	20,313,450	22,936,060	25,954,896
Other—					
Bream, Black	32,242	37,733	32,608	28,941	32,646
Bream, Buffalo	38,898	29,361	16,647	17,379	27,918
Bream, Western Yellowfin	36,795	49,829	25,302	42,848	34,720
Cobbler	486,991	255,461	206,306	196,793	154,703
Cod	43,688	49,283	57,049	35,846	34,791
Flathead	22,600	17,446	19,723	18,844	17,821
Garfish, Sea	73,576	51,780	62,612	51,035	39,447
Groper	19,447	27,445	31,714	28,781	28,809
Herring, Perth	184,238	311,204	483,557	469,810	424,082
Jewfish, Westralian	321,386	283,467	273,679	282,473	229,704
Mackerel, Scaly	107,347	257,103	373,729	80,968	88,650
Mackerel, Spanish	192,821	229,641	226,372	119,729	200,054
Mullet, Sea	902,142	984,206	1,216,315	991,808	654,290
Mullet, Yellow-eye	373,788	431,508	772,999	768,178	729,596
Mulloway (River Kingfish)	28,024	39,471	46,448	18,222	25,577
Pilchard	39,065	20,689	336,794	260,963	437,594
Ruff (Sea Herring)	529,006	880,922	939,261	710,400	744,615
Salmon, Australian	4,614,914	3,401,307	6,508,108	9,244,594	10,501,627
Samson Fish (Sea Kingfish)	80,164	62,821	118,464	115,823	78,464
Shark	687,660	802,478	969,574	832,765	710,205
Snapper	1,543,052	1,083,244	548,589	572,456	559,334
Tailor	163,201	191,768	196,210	134,565	79,440
Tarwhine	9,885	4,325	10,439	2,583	5,475
Trevally, Silver (Skipjack)	81,388	104,475	106,466	63,990	48,268
Tuna	52,909	32,902	47,465	106,328	144,183
Whiting, King George	45,896	37,314	45,361	43,259	57,675
Whiting, Western Sand	542,131	413,993	399,964	468,748	458,194
Other species (*b*)	993,001	* 1,587,176	* 1,514,660	809,811	1,178,794
Total	12,246,255	*11,678,352	*15,586,415	16,517,940	17,726,676
GRAND TOTAL	32,366,860	*29,913,954	*35,899,865	39,454,000	43,681,572

(*a*) Estimated live weight. (*b*) Includes turtles and edible molluscs. * Figures revised since previous issue.

A summary of the principal statistics of the fishing industry is given in the following table.

GENERAL FISHERIES

At 31 December	Boats licensed	Value of boats and equipment	Fishermen licensed (a)	Year	Production			
					Rock lobsters		Other fish (b)	
					Quantity (c)	Value	Quantity (d)	Value
	number	$	number		'000 lb	$	'000 lb	$
1963	1,456	9,780,520	2,526	1963–64	17,973	6,889,472	11,494	1,374,882
1964	1,438	9,246,590	2,299	1964–65	16,378	11,191,714	10,361	1,299,552
1965	1,458	8,795,976	2,346	1965–66	17,794	11,388,247	14,343	1,256,267
1966	1,475	9,707,380	2,350	1966–67	*18,943	11,344,143	*15,949	1,013,173
1967	1,487	11,413,000	2,724	1967–68	22,024	16,862,727	16,747	1,099,506

(a) Comprises employees and working proprietors. (b) Excludes crustaceans, edible molluscs and turtles. (c) Live weight of whole rock lobsters. (d) Estimated live weight. * Revised.

Whaling

Whaling has been conducted along the Western Australian coast from the first years of settlement and whale oil and whale bone were among the earliest exports from the Colony. Activity since then has fluctuated widely and at times ceased altogether. The latest large-scale revival of the industry began in 1949, when a station at Point Cloates on the north-west coast was reopened after a lapse of more than twenty years. A treatment plant was established by the Australian Whaling Commission at Babbage Island, near Carnarvon, in 1951 and a plant at Frenchman Bay near Albany was enlarged in the following year. In 1956, the company operating from Point Cloates purchased the Australian Whaling Commission's station at Babbage Island and transferred its activities to that base.

During the 1963 season the two whaling companies operating in Western Australia took only eighty-seven humpback whales, compared with a quota of 550 allocated under the procedure laid down by the International Whaling Commission. At a meeting held in London in July 1963 the Commission decided that more stringent measures should be adopted to prevent further depletion of numbers. Accordingly it imposed a total ban on the taking of humpback whales for an indefinite period in all waters of the Southern Hemisphere. The company operating from Carnarvon, which relied mainly on the taking of humpbacks, ceased whaling activities at its Carnarvon base in August 1963.

Before the 1962 season the whales taken were predominantly humpbacks. The only station now operating is at Frenchman Bay where sperm whaling has been carried on since 1955.

The figures in the following table have been derived from information provided by the Fisheries Branch of the Commonwealth Department of Primary Industry.

WHALING

Particulars	1964	1965	1966	1967	1968
Sperm whales taken .... No.	801	668	606	587	658
Oil produced (a) .... tons	5,069	4,379	4,042	3,738	3,912

(a) 1 ton = 6 barrels (approximately).

Pearl-shell Fishing and Pearl Culture

Pearl and pearl-shell fishing has been a valuable industry for many years, the main centre being Broome. The pearls obtained were once an important feature of production but the success of the industry now depends almost entirely on the shell produced and the price obtainable for it. Activities were suspended following the outbreak of war with Japan, when valuable luggers and equipment were lost. After the war recovery of the industry was slow because of a shortage of suitable boats and the difficulty in obtaining experienced divers. In 1953 the rate of progress improved when the services of trained Japanese divers again became available. By 1957 production of shell had reached the

pre-war level of about 1,000 tons but due to the depressed state of the market it fell to 753 tons in 1958. Except for a slight recovery in 1960, production declined in each year from 1959 until 1964, when 138 tons of shell were raised. Due to the increased demand for shell for pearl culture, production then increased slightly and in 1968 was 212 tons.

In 1956 a licence was granted to a company to culture pearls at Kuri Bay in Brecknock Harbour, 130 miles north-east of Derby and the initial harvest of pearls was gathered in 1957. Licences have since been issued to two other companies and pearl culture farms have been established in Samson Inlet, Hiro Bay and Mura Bay and in King Sound and at Exmouth Gulf near Giralia Landing. Pearls were harvested at Exmouth Gulf for the first time in 1965. During 1966 approximately 50,000 live shells were shipped from Western Australia to Papua, where they were used to establish the pearl culture industry at Fairfax Harbour. A further 40,000 live shells were shipped in 1967. Figures in the following table do not include details of culture pearl production.

PEARL AND PEARL-SHELL FISHERIES
(*Excluding Pearl Culture*)

Particulars	Year ended 31 December—				
	1964	1965	1966	1967	1968
VESSELS OPERATING					
Number	10	11	13	14	13
Aggregate tonnage	256	252	301	332	319
Value (including equipment) $	108,000	96,600	106,000	123,500	124,000
NUMBER OF PERSONS ENGAGED					
European	10	5	7	9	5
Australian Aboriginal	19	25	17	8	11
Asian—					
Chinese	4	2	2	1	....
Filipino	....	....	....	....	....
Japanese	30	28	34	37	35
Koepanger	1	2	2	1	....
Malay	38	44	60	76	68
Other	1	1	1	....	....
Total	74	77	99	115	103
Total persons engaged	103	107	123	132	119
PEARL-SHELL AND PEARLS PRODUCED					
Pearl-shell—					
Quantity tons	138	160	185	221	212
Value $	182,080	258,394	278,608	354,845	333,008
Value of pearls $	1,092	980	1,329	4,200	1,050

MINING AND QUARRYING

Mineral statistics presented in the following pages are derived principally from the annual census of mining and quarrying conducted by the Bureau of Census and Statistics. Data from the census are supplemented where necessary by publishable information made available by the Western Australian Department of Mines.

The mining industry has been for many years of considerable significance in the Western Australian economy and it has recently increased in importance due to the exploitation of iron ore, nickel, oil and other minerals. The mineral resources of the State are extremely varied in character and are widely distributed geographically. Extensive

exploratory work is being undertaken to evaluate the known deposits and also to locate other reserves of minerals. The geology of the State is described in Chapter II Part 1—*Physical Features and Geology*, and reference is made there to the occurrence of mineral deposits.

The following table gives details of mine and quarry production during the calendar years 1966 to 1968.

MINE AND QUARRY PRODUCTION

Item	1966		1967		1968	
	Quantity	Value	Quantity	Value	Quantity	Value
	fine oz	$	fine oz	$	fine oz	$
Gold (*a*)	627,052	23,242,512	573,755	21,618,215	515,950	19,539,407
Silver (*b*)	226,912	266,232	218,442	297,086	183,553	374,800
Asbestos—	tons		tons		tons	
Crocidolite	11,465	2,414,905	....	....	....	....
Chrysotile	119	19,326	76	3,215	67	2,814
Barytes	1,810	26,660	962	21,613	656	9,968
Bauxite	807,105	(*c*)	1,353,980	(*c*)	1,607,988	(*c*)
Beryl	13	2,992	11	3,682	14	5,668
Clays—all kinds (*d*)	577,217	536,039	613,981	*537,864	1,073,272	977,099
Coal	1,061,095	4,562,087	1,062,151	4,764,502	1,087,379	4,816,725
Copper concentrates	3,268	524,827	(*e*) 3,093	(*e*) 558,835	(*e*) 4,276	(*e*) 908,221
			barrels		barrels	
Crude oil	....	....	4,819,000	(*c*)	10,776,534	(*f*) 31,036,418
			tons		tons	
Cupreous ore (*g*)	962	87,954	776	52,126	691	51,231
Felspar	1,282	18,050	342	5,112	469	7,035
Gypsum	41,884	79,873	40,078	303,193	103,929	643,669
Ilmenite concentrates	497,848	4,801,929	*529,914	*5,182,305	535,232	4,576,740
Iron ore	6,106,105	33,771,718	12,160,702	84,358,259	18,827,593	131,939,262
Lead, silver-lead and silver-lead-zinc ore and concentrates	2,681	109,242	910	96,893	418	40,957
Leucoxene concentrates	756	31,273	696	35,257	1,607	75,607
Limestone and shell (including road-making stone but excluding building stone)	1,362,919	1,430,519	1,276,391	*851,904	1,336,260	1,065,400
Magnesite	135	1,959	1,258	12,224	166	2,412
Manganese ore	183,209	4,091,257	195,065	4,465,602	150,338	3,135,445
Monazite concentrates	1,346	162,778	1,570	207,370	1,256	152,007
	'000 cubic ft		'000 cubic ft		'000 cubic ft	
Natural gas	....	....	25,575	(*c*)	92,922	(*c*)
	tons		tons		tons	
Nickel concentrates	....	....	15,753	(*c*)	36,880	(*c*)
Ochre	207	4,140	261	5,220	515	9,824
Pyritic ore and concentrates	76,136	1,070,135	78,685	1,113,400	32,879	420,825
Rutile concentrates	576	40,515	400	28,757	845	66,773
Semi-precious stones—					carats	
Emeralds	....	....	....	....	418	798
	lb		lb		lb	
Other	....	....	62,872	8,042	33,174	9,773
Stone, building and monumental—	tons		tons		tons	
Sandstone, limestone, granite, etc.	146,687	412,064	126,998	404,587	169,793	513,623
Stone, crushed and broken (*h*)—						
Granite, diorite, quartzite, basalt	2,157,330	6,373,342	2,480,117	6,759,617	3,056,309	8,193,769
Talc	9,155	231,625	7,901	227,037	(*c*)	(*c*)
	lb		lb		lb	
Tantalite concentrates (including tantalite-columbite)	10,550	19,691	78,400	172,211	237,440	340,113
	tons		tons		tons	
Tin ore and concentrates	973	2,072,176	1,074	2,197,648	895	1,658,241
Xenotime	....	....	18	45,000	....	....
Zircon concentrates	25,159	899,263	32,166	1,193,369	28,096	889,277
Other (value only) (*i*)	....	2,207,191	....	22,015,116	....	11,529,660
Total value	....	89,512,274	....	*157,545,261	....	222,993,561

(*a*) Values are in terms of Australian currency and include amounts realised by the Gold Producers' Association Ltd. on sales of Western Australian gold—in 1966, $116,014; in 1967, $70,569; in 1968, $794,964. They also include Commonwealth net subsidy paid to gold producers—in 1966, $3,550,489; in 1967, $3,617,813; in 1968, $2,621,004. (*b*) By-product from treatment of auriferous ore and excludes silver contained in silver-lead and copper ores and concentrates exported, for which see table on page 381. (*c*) Not available for publication. (*d*) Includes production of bentonite. (*e*) Excludes copper concentrates from nickel mining which commenced production in June 1967. (*f*) Value based on price per barrel published by Ampol Petroleum Limited. (*g*) For fertiliser. (*h*) Excludes limestone. (*i*) Includes production of nickel, bauxite and salt.
* Revised.

The development of mining as a major industry in Western Australia began with the discovery of gold in the Kimberley in 1885, although some forty years earlier coal had been found at the Irwin River and copper and lead in the Northampton district. The impetus given to prospecting by the Kimberley finds led to other gold strikes between 1887 and 1891 and the rich discoveries at Coolgardie in 1892 and at Kalgoorlie in 1893.

Developments in recent years have led to a great increase in the value of mineral production. Beach sands in the lower south-west of the State are being exploited for their ilmenite content and bauxite deposits in the Darling Range near Perth are being worked as a source of alumina which is exported interstate and overseas. Vast reserves of high-grade iron ore in the Pilbara and elsewhere are being mined, the first commercial shipments to overseas destinations commencing in 1966. Commercial deposits of crude oil at Barrow Island and of nickel ore at Kambalda are also being mined and are contributing to the value of mineral production.

During the war years employment in mining and quarrying decreased considerably and, although there was some recovery after 1945, the number of men engaged in 1967 was only 8,245 compared with 16,530 in 1939. This decline in employment occurred mainly in the gold-mining industry and further comment on it appears in the section *Gold* below. Mining for iron ore and nickel was largely responsible for the significant increase in the number employed in 1967.

MEN WORKING AT MINES AND QUARRIES (*a*)

Description	1963	1964	1965	1966	1967
Gold mining (*b*)	4,901	(*c*) 4,383	4,094	4,053	4,027
Coal mining	757	765	760	726	694
Other mining and quarrying	1,837	2,255	2,307	2,747	3,525
Total	7,495	7,403	7,161	7,526	8,246

(*a*) Average over the whole year. (*b*) Includes alluvial diggers. (*c*) Decrease due mainly to cessation of operations during 1963 at a number of mines situated in the Coolgardie, Mount Margaret and Yilgarn Goldfields.

The mining laws of the State have been designed to encourage as well as to control activity in the industry. This policy and the experience of other countries were given due consideration in framing them and they are regarded as equitable and offering all reasonable incentives to mining development. The various tenures are described in detail in Chapter VII, Part 1 of the previous issue of the Year Book.

Gold

Although specimens of gold had been found in earlier years at several places in the Colony, it was first discovered in payable quantities in the Kimberley in 1885. This find led to widespread prospecting activity, resulting in further gold strikes between 1887 and 1891 in the Yilgarn, Pilbara, Ashburton and Murchison districts. These were followed by spectacular discoveries in 1892 at Coolgardie and in 1893 at Kalgoorlie where the famous Golden Mile was developed. The Golden Mile is still the principal source of gold in the State and accounts for about one-half of Australia's total production. By 1900 all the present proclaimed goldfields, ranging from Kimberley in the north to Phillips River in the south, had been opened up.

Production reached a maximum of 2,064,800 fine ounces in 1903 but there followed a gradual and continuous decline, due mainly to exhaustion of surface deposits, until in 1929 the yield was only 377,176 fine ounces. In succeeding years various economic factors stimulated activity in the industry and there was a well-maintained improvement until 1939 when production reached 1,214,238 fine ounces. The second World War brought about a decline which was accelerated by the introduction early in 1942 of a rigid system of manpower control. The average annual production as reported by gold mines for the five-year period 1963-1967 was 675,101 fine ounces.

The production of each goldfield, as reported to the Department of Mines, for each year from 1963 to 1967 is shown in the following table. Gold produced in the period 1886 to 31 December 1967 amounted to 65,207,124 fine ounces.

MINE PRODUCTION OF GOLD (*a*) CLASSIFIED ACCORDING TO GOLDFIELD
(Fine ounces)

Goldfield	1963	1964	1965	1966	1967
Kimberley	160	15	11	18	7
Pilbara	1,764	968	508	917	1,351
West Pilbara	....	....	....	....	....
Ashburton	....	1	....	....	....
Gascoyne	242	311	260	350	714
Peak Hill	87	18	101	6	10
East Murchison	278	*847	*1,243	1,044	1,138
Murchison	83,700	71,414	55,477	42,472	41,632
Yalgoo	102	....	....	7	135
Mount Margaret	31,982	909	257	715	1,183
North Coolgardie	18,357	17,858	*13,880	10,336	3,121
Broad Arrow	1,285	3,027	*3,056	2,274	903
North-East Coolgardie	231	173	335	487	450
East Coolgardie (*b*)	531,102	509,984	477,900	461,264	432,145
Coolgardie	10,139	*4,007	*4,628	5,636	1,811
Yilgarn	17,904	2,784	2,238	1,020	1,360
Dundas	102,951	100,864	95,393	99,063	86,523
Phillips River (*c*)	2,542	2,210	1,064	1,389	1,199
Outside proclaimed goldfields (*d*)	34	89	4	53	73
Total	802,860	(*e*) 715,481	656,355	627,052	573,755

(*a*) As reported to the Department of Mines. (*b*) Includes Golden Mile, Kalgoorlie; see letterpress preceding table. (*c*) Production is mainly from copper concentrates. (*d*) Includes South-West Mineral Field. (*e*) See footnote (*c*) to previous table. * Revised.

The figures given in the following table relate to refinery production and comprise gold refined at the Perth Branch of the Royal Mint and gold contained in gold-bearing materials exported. Particulars for individual years do not agree with those for mine production, quoted in earlier tables, because of the delay between production at the mine and refining at the Mint. Values include amounts distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. The amounts shown as 'Commonwealth net subsidy' represent payments made to gold producers under the Gold-Mining Industry Assistance Act passed by the Commonwealth Parliament in 1954. The values exclude amounts, totalling $488,644, paid by the Commonwealth under the *Gold Mines Development Assistance Act* 1962 in the form of a development allowance to approved producers not receiving the subsidy. This Act expired on 30 June 1965 and was not renewed, as the result of an amendment made in 1965 to the Gold-Mining Industry Assistance Act liberalising the conditions applying to subsidy payments and continuing the operation of the Act until 30 June 1970.

REFINERY PRODUCTION OF GOLD

Year	Quantity (*a*)			Value			
	Refined outside the State (*b*)	Refined at Perth Mint	Total	Mint value	Payments by Gold Producers' Association Ltd.	Commonwealth net subsidy	Total
	fine oz	fine oz	fine oz	$	$	$	$
1963	4,665	795,546	800,212	25,006,614	28,758	1,339,566	26,374,938
1964	3,071	709,776	(*c*) 712,847	22,276,468	23,418	1,083,374	23,383,260
1965	2,997	656,440	659,437	20,607,404	114,760	1,659,163	22,381,327
1966	1,462	627,315	628,777	19,649,273	116,014	3,550,489	23,315,776
1967	2,743	573,278	576,021	18,001,355	70,569	3,617,813	21,689,737

(*a*) Figures do not in all cases add to the totals shown owing to rounding to the nearest fine ounce. (*b*) Comprises gold in ores and concentrates exported. (*c*) See footnote (*c*) to table on page 379.

GOLD MINING—SUMMARY OF OPERATIONS (*a*)

Year	Leases in force at 31 December (*b*)		Gold-mining machinery in use at 31 December					Total value of gold-mining machinery	Ore treated	Employment at mines (*c*)		Alluvial diggers
			Batteries		Other crushing mills	Cyaniding						
	Leases	Area	Number	Head of stamps		Leaching and agitating vats	Vacuum filters and presses			Above ground	Under ground	
	No.	acres		No.	No.	No.	No.	$	tons	No.	No.	No.
1963	989	18,253	38	252	166	197	63	17,777,490	2,770,166	2,346	2,527	28
1964	953	17,716	37	237	201	155	84	14,615,846	2,645,956	(*d*)2,111	(*d*)2,243	29
1965	960	18,032	32	215	213	133	61	14,535,960	2,530,165	1,982	2,091	21
1966	1,008	18,647	32	219	134	129	69	17,048,933	2,619,016	1,960	2,075	18
1967	1,030	19,278	26	184	162	119	57	15,212,708	2,531,624	2,022	1,988	17

(*a*) Includes Government Batteries. (*b*) Includes leases taken up on private property. (*c*) Average over whole year. Excludes workers on sick, accident, annual and long service leave. (*d*) See footnote (*c*) to table on page 379.

Except for minor fluctuations, a general increase in the quantity of ore treated annually occurred between 1946 and 1960. Although there has been a decline since that year, the quantity treated in 1967, 2·53 million tons, was nevertheless appreciably greater than the amount of 2·19 million tons treated in 1946. The higher tonnage of ore treated annually in post-war years has been achieved with a decreasing work force by the introduction of new methods and improved tools and machinery, the number of men employed (including alluvial diggers) having declined from 6,961 in 1946 to 4,027 in 1967.

The Department of Mines operates batteries for the treatment of ore which is mined by prospectors or other small producers, and various concessions are made in order to encourage work which is exploratory or too limited in extent to warrant the installation of major plant. Figures for the State Batteries are included in the previous table.

Silver

The greater portion of silver produced in Western Australia has been obtained as a by-product of gold mining. The other silver production is from silver-lead, silver-lead-zinc and copper ores and concentrates exported for treatment outside the State.

PRODUCTION OF SILVER

Year	From treatment of auriferous ore		Silver content of silver-lead, silver-lead-zinc and of copper ores and concentrates exported	
	Quantity	Value	Quantity	Value
	fine oz	$	fine oz	$
1963	213,878	245,560	6,886	7,728
1964	224,573	263,282	17,159	19,916
1965	234,280	274,473	11,102	13,007
1966	226,912	266,232	9,819	10,930
1967	218,442	297,086	5,131	6,992

Asbestos

Several types of asbestos occur in the State but only two, crocidolite and chrysotile, have been produced in significant quantities. The production of crocidolite (blue asbestos) from deposits at Wittenoom Gorge in the West Pilbara district ceased in 1966. Peak production of crocidolite occurred in 1962 when 15,617 tons were mined. Chrysotile, which occurs at a number of places in the Pilbara and West Pilbara districts, has been relatively less important than crocidolite. A small quantity of chrysotile was recovered from old dumps in the Pilbara during 1968.

PRODUCTION OF ASBESTOS

Year	Crocidolite		Chrysotile		Total	
	Quantity	Value	Quantity	Value	Quantity	Value
	tons	$	tons	$	tons	$
1963	11,095	2,404,004	10	1,566	11,105	2,405,570
1964	10,614	2,124,200	536	87,362	11,150	2,211,562
1965	9,280	1,974,246	402	57,678	9,682	2,031,924
1966	11,465	2,414,905	119	19,326	11,584	2,434,231
1967	(a)	(a)	76	3,215	76	3,215

(a) Production ceased in 1966.

Bauxite

Following a survey of bauxite deposits, which occur over a large area in the Darling Range, trial shipments of bauxite totalling 36,741 tons were sent to Tasmania and Japan in 1959 and 1960. In 1961 the Alumina Refinery Agreement Act was passed by the State Parliament ratifying an agreement between the Government and Western Aluminium No Liability for the construction of a refinery at Kwinana to produce alumina from bauxite mined in the Darling Range and for the export of bauxite. A summary of the main provisions of the Act appears on page 104 of the *Official Year Book of Western Australia*, No. 4—1964. The refinery commenced production of alumina towards the end of 1963 with an initial annual capacity of 210,000 metric tons. The capacity of the refinery has been progressively expanded to 830,000 metric tons and further expansion is being undertaken which will increase the capacity to 1,250,000 tons per annum by the end of 1970. Alumina from the refinery is shipped to Victoria for reduction to aluminium, and exported to Japan and the United States of America. Exports to the Bahrain Islands are planned to commence in the latter half of 1970.

An agreement between the State Government and Western Aluminium No Liability permitting the company to construct a second refinery to be located in the Pinjarra area south of Perth was ratified by Parliament in terms of the *Alumina Refinery (Pinjarra) Agreement Act, 1969*.

Development of the extensive bauxite deposits discovered in the Admiralty Gulf area in the Kimberley in 1965 by Amax Bauxite Corporation is planned under the provisions of the *Alumina Refinery (Mitchell Plateau) Agreement Act, 1969*. Total expenditure on developing the mine, and on the construction of a townsite, port, alumina refinery and other ancillary services is expected to exceed $200 million.

Beryllium Ore

Beryl occurs in many localities throughout the State but is obtained mainly from the Pilbara and Gascoyne districts. Production was negligible until, as a result of the wartime demand for beryllium-copper alloys, 548 tons were produced in 1943 and 387 tons in 1944. It then declined but later recovered to some extent, reaching a post-war peak of 350 tons in 1957. Production in the next four years fluctuated considerably but steadily declined from 261 tons in 1961 to only 11 tons in 1967.

PRODUCTION OF BERYL

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	82	80	14	13	11
Value ($)	22,204	18,076	2,891	2,992	3,682

Coal

The first reports of coal discoveries, in the Murray district and on the Irwin River, were made in 1846 but the only commercial production in Western Australia occurs at the Collie River Mineral Field. The coal is sub-bituminous in rank and there are substantial reserves in the area.

Annual production exceeded 1 million tons for the first time in 1954, but in 1956 it fell to 830,007 tons. It increased in each of the next four years and in 1960 production totalled 922,393 tons. A major producer closed its mines on the termination in December 1960 of its contract for the supply of coal to the State Government, and production declined to 765,740 tons in 1961. There was a substantial recovery in 1962, when 919,112 tons were produced. This recovery has been maintained and production in 1967 was 1,062,151 tons, the highest ever recorded.

COAL PRODUCTION

Year	Quantity			Value
	From deep mines	From open cuts	Total	
	tons	tons	tons	$
1963	600,934	301,561	902,495	3,970,120
1964	644,107	343,313	987,420	4,678,934
1965	508,260	485,481	993,741	4,409,972
1966	493,256	567,839	1,061,095	4,562,087
1967	494,281	567,870	1,062,151	4,764,502

Open-cut mining was commenced at Collie in 1943 and the amount produced by this means increased rapidly until in 1952 almost one-half of the total production came from open cuts. In each year from 1953 to 1960 the proportion of open-cut coal was less than in 1952, and in 1960 was little more than one-eighth of all coal produced. New contracts for government requirements, which came into operation at the beginning of 1961, provided for an increase in supplies from open-cuts, and in 1967 more than 50 per cent of all coal produced came from this source.

For some years after the war, employment in coal mining rose steadily and reached 1,560 in 1954. It then declined and in 1960 had fallen to 984. There was a sharp decrease in 1961 when the total was only 582, of whom one-third were employed above ground compared with about one-fifth in each of the three previous years. In each year from 1962 to 1966, the number of men employed exceeded 700, the proportion of those working above ground having risen to over two fifths in 1966. Employment in 1967 was 694 of which 284 were employed above ground and 410 below ground.

MEN WORKING AT COAL MINES (*a*)

Description	1963	1964	1965	1966	1967
Above ground	240	246	293	307	284
Below ground	517	519	467	419	410
Total	757	765	760	726	694

(*a*) Average number employed over the whole year.

Copper Ore

Copper ore in commercial quantities was discovered in 1849 in the Northampton district. High-grade ore was found in 1855 at Bowes River in the same area and in 1872 one of the richest deposits was discovered in the West Pilbara near Roebourne. Considerable quantities of copper have been produced at the mines in the Northampton

district, where it occurs in association with lead, and also in the Ravensthorpe area, in association with gold. Another important producer has been the Murrin Murrin district in the Mount Margaret area.

Due to low prices, rising costs of mining and treatment and the exhaustion of rich secondary ores near the surface, production was on a very small scale between 1925 and 1956. It then increased substantially and in 1961 reached 6,290 tons valued at $651,392. In the succeeding years production has fluctuated and in 1967 amounted to 3,093 tons worth $558,835.

PRODUCTION OF COPPER ORE (*a*)
(*For smelting to copper*)

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	6,266	4,619	2,052	3,268	3,093
Value ($)	615,804	558,068	258,517	524,827	558,835

(*a*) For production of cupreous ore for fertiliser see following section.

Cupreous Ore (for fertiliser)

The demand for copper to remedy trace element deficiencies in soils created a market for low-grade ores for use in chemical fertilisers. Until this development, the production of ores having a low copper content was uneconomical because of high costs of transport and smelting.

PRODUCTION OF CUPREOUS ORE FOR FERTILISER

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	3,235	2,197	1,079	962	776
Value ($)	272,400	251,970	99,234	87,954	52,126

Production for use in fertilisers commenced in 1947 and increased to 7,731 tons in 1955. After reaching a peak of 11,859 tons in 1959, it declined in 1960 and 1961 but improved to 9,275 tons in 1962. In subsequent years production decreased substantially and in 1967 amounted to only 776 tons. The Pilbara and Peak Hill areas are the principal sources of supply.

Ilmenite, Leucoxene, Monazite, Rutile, Xenotime and Zircon

Although beach sands being treated near Bunbury, Busselton and Capel also contain leucoxene, monazite, rutile, xenotime and zircon, the ilmenite content is of particular importance because it is virtually chrome-free and little difficulty is experienced in producing a concentrate of high quality. Operations began in 1956, when the recorded production of ilmenite concentrates was 3,293 tons valued at $30,300. Output has risen rapidly and in 1967, production amounted to 529,914 tons valued at $5,182,305.

PRODUCTION OF ILMENITE CONCENTRATES

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	195,008	297,322	430,455	497,848	529,914
Value ($)	1,854,244	2,811,812	4,331,784	4,801,929	5,182,305

Concentrates containing leucoxene, monazite, rutile, xenotime and zircon are recovered as by-products from the treatment of the beach sands and the first shipments were made in 1958, when 513 tons of concentrates valued at $33,518 were exported. In 1967 recorded production totalled 34,850 tons valued at $1,509,753.



Block by courtesy of Hamersley Iron Pty. Limited

REPAIRING IRON-ORE SHOVEL

The mechanical shovel illustrated, with a bucket capacity of twelve cubic yards, is one of four operated by Hamersley Iron Pty. Limited on the orebody at Mount Tom Price. Broken ore is loaded by the shovel into motor trucks, each of which carries 100 tons of ore, to be crushed and screened before it is transported by rail to Dampier.



Block by courtesy of West Australian Petroleum Pty. Limited

DRILLING RIG

The oil drilling rig 'Jubilee' is shown during operations at Quinns No. 1, the first offshore well in the Perth Basin. This well was spudded in on 10 October 1968 at a location some twenty miles north of Fremantle.

PRODUCTION OF LEUCOXENE, MONAZITE, RUTILE, XENOTIME AND ZIRCON CONCENTRATES

Year	Leucoxene		Monazite		Rutile		Xenotime		Zircon		Total	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	tons	$	tons	$	tons	$	tons	$	tons	$	tons	$
1963	547	13,892	1,320	105,688	763	45,460	....	....	12,542	261,292	15,172	426,332
1964	656	26,660	1,126	97,294	669	42,150	....	....	21,511	435,402	23,962	601,506
1965	380	16,858	1,447	155,040	225	15,990	....	....	23,410	687,310	25,462	875,198
1966	756	31,273	1,346	162,778	576	40,515	....	....	25,159	899,263	27,837	1,133,829
1967	696	35,257	1,570	207,370	400	28,757	18	45,000	32,166	1,193,369	34,850	1,509,753

Iron

Iron-ore deposits are widely distributed throughout Western Australia and the State's iron-ore reserves have been assessed at over 18,000 million tons of high-grade ore. Since 1951 large quantities of hematite have been produced at Cockatoo Island (Yampi Sound) in the West Kimberley district for shipment to other Australian States. The first shipment of ore from the deposits on the adjacent Koolan Island was made in January 1965, following the completion of mining and loading facilities which had been under development since 1960.

In recent years there have been a number of developments in connection with iron-ore deposits which have led to greatly expanded production.

As a result of the passage in 1960 of the Broken Hill Proprietary Company's Integrated Steel Works Agreement Act, which ratifies an agreement between the State Government and the Company relating to the establishment of an integrated iron and steel industry in Western Australia, developmental work was undertaken in the Koolyanobbing Range and production from the Company's leases in this area commenced in April 1967. The ore is being railed to Kwinana for use in the blast furnace established at Kwinana in terms of the agreement, and for export interstate.

The announcement in December 1960 of the Commonwealth Government's decision to modify its embargo on overseas exports, which had been in force since 1938, caused increased interest in Western Australian deposits. The subdivision of the deposits (other than those reserved for the domestic iron and steel industry under the Commonwealth's revised export policy) into three categories was announced by the State Government in March 1961. The first category includes known high-grade deposits, not covered by lease agreements, which are to be retained by the Crown to ensure supplies for the State's steel requirements or for export. The second category, being known medium and low-grade deposits, and the third category, comprising deposits as yet undiscovered, may be made the subject of temporary reservations granting the right to explore, each such reservation being limited to a maximum area of fifty square miles.

The State Parliament ratified a number of agreements between the Government and private companies for the mining and export of iron ore and, in certain instances, for secondary processing of the ore as a later development and, ultimately, for the establishment of integrated iron and steel works. The provisions of these agreements are referred to on pages 106 and 110 of the *Official Year Book of Western Australia*, No. 4—1964, in the section *Legislation during 1963 and 1964* in Chapter III of the succeeding issue, on page 114 of the *Western Australian Year Book*, No. 6—1967 and on page 111 of the *Western Australian Year Book*, No. 8—1969. The ore is now being exported overseas, mainly to Japan. A number of contracts between leading Japanese steel mills and certain of the mining companies resulted in large-scale mining operations which commenced in 1966. Ore from Koolanooka Hills, near Morawa, is being transported by rail to the port of Geraldton, 100 miles distant. From Mount Goldsworthy, about seventy miles east of Port Hedland, ore is being railed to a deep-water port on Finucane Island, just off Port Hedland. Ore mined at Mount Tom Price, in the Hamersley Range area south-west of Port Hedland, is being railed 182 miles to the port of Dampier in King Bay, which is west of Roebourne. From Mount Whaleback in the Opthalmia Range

ore is railed to Port Hedland, 265 miles to the north. The first shipments of iron ore under these contracts were made from Geraldton on 17 March 1966; from Port Hedland on 2 June 1966; and from Dampier on 22 August 1966. At 1 November 1969 contracts had been signed for the delivery of 350 million tons of iron ore and pellets with an f.o.b. value of $3,800 million and more than $500 million had been spent by the companies on mine development, railways, townships, deep-water ports and pelletising facilities. Further development will involve expenditure currently estimated in excess of $1,000 million.

PRODUCTION OF IRON ORE

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	1,333,138	1,357,715	2,313,434	6,106,105	12,160,702
Value ($)	2,690,508	2,770,930	4,662,022	33,771,718	84,358,259

Pig-iron production in Western Australia began in 1948 at Wundowie in the Darling Range east of Perth using charcoal produced from local eucalypts. Originally, brown iron ore (limonite) mined near Wundowie was used in the smelting process, but has been replaced by ore obtained from Koolyanobbing, east of Bullfinch in the Yilgarn district. The extensive deposits in the Koolyanobbing area are mainly high-grade hematite ores with some limonite. Pig-iron is also produced at Kwinana where production commenced in May 1968.

Lead Ore

Lead ore was discovered near the lower Murchison River in 1848, at what became known as the Geraldine Mine. It has since been found in other localities, principally in the Pilbara, Ashburton and West Kimberley districts, and a half a million tons have been raised, the great bulk of it from the mineral field around Northampton, the area of the first finds. Production fluctuated very widely and ceased almost entirely during the war, but a substantial increase occurred in the post-war years and in 1956 it rose to 7,613 tons. After 1956 it declined rapidly and in 1963 only 185 tons were produced. In 1964, when 3,354 tons were produced, there was a revival of lead mining in the West Kimberley mineral field. After a further gain to 4,878 tons in 1965, production again declined and in 1967 was only 910 tons.

Although the ore from the Northampton field is almost free from silver, that from other areas further north, notably the Ashburton, Pilbara and West Kimberley, has a silver content which may be as much as ten ounces per ton. Production of such ores is included in the following table.

PRODUCTION OF LEAD, SILVER-LEAD, AND SILVER-LEAD-ZINC ORES (*a*)

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	185	3,354	4,878	2,681	910
Value ($)	13,070	198,868	401,978	109,242	96,893

(*a*) Including concentrates.

Manganese Ore

Deposits of manganese ore occur in several parts of the State but up to the end of 1947 only 252 tons had been mined. After 1947 production increased rapidly and in 1961 totalled 83,660 tons valued at $2,141,390. After a decline to 34,808 tons in 1963, production increased and in 1967 a record output of 195,065 tons valued at $4,465,602 was produced. Two-thirds of the quantity mined in 1967 came from the Pilbara field, the remainder being obtained from the Peak Hill field.

PRODUCTION OF MANGANESE ORE

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	34,808	60,182	97,901	183,209	195,065
Value ($)	864,268	1,415,788	2,106,058	4,091,257	4,465,602

Nickel

The discovery of nickel deposits at Kambalda, thirty miles south of Kalgoorlie, was announced in March 1966. The company developing the deposits reported the presence of more than 2,300,000 tons of high-grade nickel sulphide ore and has contracted to export nickel concentrates to overseas buyers. Production commenced in June 1967 and the first shipment was made to Canada in August 1967, treatment of ore at the rate of 10,000 tons per month being achieved by the end of that year. The concentrates are being transported twenty-five miles by road to Widgiemooltha and railed to the port of Esperance for shipment. In addition to nickel the concentrates also contain copper, cobalt, palladium and platinum. Details of the production of nickel concentrates are shown in the table on page 378. In January 1968 the operating company, Western Mining Corporation Limited, entered into an agreement with the State Government which provides for the construction by the company of a nickel refinery at Kwinana with an annual capacity of not less than 15,000 tons and estimated to cost not less than $45 million. Site works commenced in July 1968 and production began in May 1970. Under the agreement the Company is also obliged to construct a smelting works at Kambalda or Kalgoorlie if feasibility investigations show that its establishment is economically viable. The agreement was subsequently ratified by the State parliament in terms of the *Nickel Refinery (Western Mining Corporation Limited) Agreement Act, 1968.*

During 1968 Great Boulder Gold Mines continued development of the nickel deposits in the Scotia area near Kalgoorlie. In March 1970 the Company commenced mining the ore and producing nickel concentrates.

The search for nickel has continued with increasing intensity in many areas throughout the State and a number of promising discoveries of nickel ore have been made. Intensive drilling programmes are being carried out to prove the extent of the ore bodies.

Petroleum

Reference to petroleum exploration in Western Australia is made on page 390. In May 1966 Barrow Island, sixty miles north-east of Onslow, was declared a commercial oilfield, after prolonged testing. Production commenced in 1967 and the first shipment of crude oil from this field was made on 25 April 1967. The development of the oilfield is progressing and the recoverable reserves of oil are currently estimated at 200 million barrels. Details of crude oil production are shown in the table on page 378.

Potash

At Lake MacLeod, north of Carnarvon, Texada Mines Pty. Limited has completed a $300,000 proving programme for the production of potash from brine and the company is proceeding with the establishment of a potash industry at an estimated cost of $13 million. An agreement between the Western Australian Government and Texada Mines Pty. Limited relating to the production of potash and other evaporites at or near Lake MacLeod was ratified by Parliament in terms of the *Evaporites (Lake MacLeod) Agreement Act, 1967.*

The company has developed a port at Cape Cuvier and has commenced exporting salt which is produced as a by-product of potash production. It is expected that the volume of exports of salt will exceed 500,000 tons by 1971.

Pyrites

The mining of iron pyrites was developed during the war to provide a substitute for overseas supplies of sulphur required for the manufacture of sulphuric acid for superphosphate. Production at Norseman, which was the principal source of supply since 1942, ceased in June 1968. A second source of supply was developed in 1956 when a metropolitan works commenced using concentrates from a gold mine at Kalgoorlie for the extraction of gold and sulphur. Sulphur is still being obtained from this source.

PRODUCTION OF IRON PYRITES (ORE AND CONCENTRATES)

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	58,472	58,396	59,180	76,136	78,685
Value ($)	974,496	1,109,078	1,048,425	1,070,135	1,113,400

Salt

Common salt (sodium chloride) occurs extensively in Western Australia both in maritime lagoons and inland lakes and has been harvested on a commercial basis for many years from dry lake beds. Norseman Gold Mines No Liability has commenced production of salt from Lake Lefroy in the Shire of Coolgardie and by 1973 exports of salt from these deposits are expected to reach 500,000 tons.

In recent years the production of salt by the solar evaporation of sea water has become the major source of salt in this State. The low rainfall in the North-West coupled with the high evaporation rate make the north-west coast ideal for solar salt production. Leslie Salt Company is producing salt near Port Hedland; Texada Mines Pty. Limited is producing at Lake MacLeod near Carnarvon and Salt Holdings (W.A.) Pty. Ltd. is engaged in salt production at Useless Loop in Shark Bay. Dampier Salt Limited at Dampier and Exmouth Salt (1969) Pty. Ltd. at Exmouth Gulf are also engaged in the construction of solar salt projects. The salt industry is being developed principally for the export market and to date all exports have been to Japan.

Tin Ore

Tin ore was first discovered at Greenbushes in 1888. It has since been found at several other places, but the Greenbushes and Pilbara fields have been the only major producers. Output declined during the war but increased substantially after 1949 and reached a peak in 1956 when 358 tons of ore and concentrates valued at $416,546 were produced. In 1958 it declined to 138 tons valued at $154,638, the decrease being due mainly to contraction of operations in the Greenbushes field. After 1958 production again increased and in 1967 total output was 1,074 tons valued at $2,197,648.

PRODUCTION OF TIN ORE AND CONCENTRATES

Particulars	1963	1964	1965	1966	1967
Quantity (tons)	576	637	679	973	1,074
Value ($)	816,046	1,240,782	1,558,770	2,072,176	2,197,648

Other Minerals

In addition to the other minerals listed in the table on page 378 there are some which have a high potential value but are not produced in large quantities at present. Zinc is associated with many of the silver-lead ores and some of the copper ores and has been mined as the carbonate with a zinc content of 38 per cent. Arsenious oxide and antimonial concentrates were produced commercially for some years as by-products in the treatment of auriferous ores. Small amounts of bismuth concentrates assaying as high

as 73 per cent bismuth have also been produced. Production of tantalum ores and concentrates has fluctuated with demand, but a large part of world requirements has been met from the State's resources. Tungsten ores have been produced in small quantities for some years with a slight increase during the war. Since then, output has been spasmodic. Glass sand (silica) is being produced and significant quantities are being exported overseas. Lithium, yttrium, cerium, thorium, vanadium, niobium, and molybdenum-bearing minerals are known to occur in commercial quantities and small amounts of minerals containing uranium, rubidium and caesium have been found. Deposits of bentonite, barytes, graphite, mica, kyanite, sillimanite, spodumene and vermiculite are also known and small amounts have been produced.

Quarry Products

The following table gives details of the production of certain quarry products from 1964 to 1968. It should be noted that gravel, sand and clays, for which reliable and complete information cannot be obtained, are not included.

Gross values of production of quarry products during 1963-64 to 1967-68 appear in the table on page 333.

SELECTED ITEMS OF QUARRY PRODUCTION

Year	Building and monumental stone (*a*)	Other stone	
		Granite, diorite, quartzite, basalt, etc. (*b*)	Limestone and shell (*c*)
	tons	tons	tons
1964	148,939	1,750,351	749,062
1965	185,588	2,078,940	949,358
1966	146,687	2,157,330	1,362,919
1967	126,998	2,480,117	1,276,391
1968	169,793	3,056,309	1,336,260

(*a*) Calcareous sandstone (including limestone) and granite. (*b*) Principally for roads, concrete aggregate, filling, etc. (*c*) Principally for the manufacture of lime and cement and for road making.

PRIVATE EXPLORATION FOR MINERALS

Mineral Exploration (excluding petroleum)

Mineral exploration in the State has shown very rapid growth in recent years and is now at the highest level ever known in Western Australia. The search, which covers a major portion of the State, is concerned chiefly with exploration for iron, nickel, copper, gold, lead, tin, bauxite, manganese, phosphates, evaporites, asbestos and coal, apart from petroleum (see following section).

In the next table, details are given of private exploration in Western Australia for the years 1965 to 1968. The data have been derived from the annual Mineral Exploration Census (excluding Petroleum Exploration) which is carried out by the Commonwealth Bureau of Census and Statistics in association with State Mines Departments. The first census was conducted in respect of the year 1965 and for further information and statistics in greater detail, the reader is referred to the mimeographed publication *Mineral Exploration* issued by the Commonwealth Statistician, Canberra.

For the purpose of the census, ' mineral exploration ' consists of the search for, and /or appraisal of, new ore occurrences and known deposits of minerals (including extensions to deposits being worked) by geological, geophysical, geochemical, and other methods, including drilling. The construction of shafts and adits is included if primarily for exploration purposes but mine development activities and exploration for water are excluded.

MINERAL EXPLORATION (OTHER THAN FOR PETROLEUM)

Particulars	Unit	1965	1966	1967	1968
PRIVATE EXPLORATION (*a*) ON PRODUCTION LEASES					
Expenditure (*b*)—					
On drilling	$'000	785	645	801	909
Other	$'000	690	777	329	468
Total	$'000	1,475	1,422	1,130	1,377
Payments to contractors (*c*)	$'000	93	91	194	204
Footage drilled, sunk or driven—					
Core	'000 ft	151	169	134	111
Non-core	'000 ft	24	63	111	245
Total	'000 ft	175	232	245	356
Employment (*d*)—					
Professional persons (*e*)	man-week	1,450	1,598	895	795
Non-professional persons (*f*)	man-week	5,694	5,776	3,742	4,819
Total man-weeks worked	man-week	7,144	7,374	4,637	5,614
PRIVATE EXPLORATION (*a*) ON OTHER AREAS					
Expenditure (*b*)—					
On drilling	$'000	807	1,580	2,512	5,572
Other	$'000	1,666	3,532	6,561	16,199
Total	$'000	2,473	5,112	9,073	21,771
Payments to contractors (*c*)	$'000	446	1,671	2,965	7,382
Footage drilled, sunk or driven—					
Core	'000 ft	47	151	228	604
Non-core	'000 ft	81	247	426	785
Total	'000 ft	128	398	654	1,389
Employment (*d*)—					
Professional persons (*e*)	man-week	2,342	4,742	12,885	13,668
Non-professional persons (*f*)	man-week	3,700	11,102	20,097	33,555
Total man-weeks worked	man-week	6,042	15,844	32,982	47,223
TOTAL PRIVATE EXPLORATION (*a*)					
Expenditure (*b*)—					
On drilling	$'000	1,593	2,225	3,313	6,480
Other	$'000	2,355	4,309	6,890	16,667
Total	$'000	3,948	6,534	10,203	23,148
Payments to contractors (*c*)	$'000	539	1,762	3,159	7,586
Footage drilled, sunk or driven—					
Core	'000 ft	198	319	362	715
Non-core	'000 ft	105	310	537	1,030
Total	'000 ft	303	630	899	1,745
Employment (*d*)—					
Professional persons (*e*)	man-week	3,792	6,340	13,780	14,463
Non-professional persons (*f*)	man-week	9,394	16,878	23,839	38,374
Total man-weeks worked	man-week	13,186	23,218	37,619	52,837

(*a*) Excludes exploration by the Western Australian Department of Mines and the Commonwealth Bureau of Mineral Resources, Geology and Geophysics. (*b*) Expenditure whether charged as working expenses or capitalised. Includes payments to contractors. (*c*) Amounts paid to drilling contractors, geological consultants, technical advisers, etc. for exploration services. Included in preceding figures. (*d*) Comprises the operator and his staff only; excludes contractors and their employees. (*e*) Geologists, geophysicists, engineers, etc. engaged in exploration work. (*f*) Drill operators, field hands, etc.

Petroleum Exploration

An extensive programme of oil exploration using modern geophysical and drilling techniques commenced in 1952 and resulted in the discovery of flow oil in the Exmouth Gulf area of the Carnarvon Basin in 1953. The discovery proved to be of non-commercial significance, but it stimulated further exploration for oil in Western Australia. A large area of the State has now been scientifically examined and geophysical and geological surveys are still being carried out. Discoveries of crude oil and/or gas have been made at Barrow Island and Yardarino (1964), at Gingin (1965), at Dongara (1966), at Pascoe Island (1967), at Mondarra (1968) and in Legendre No. 1 well off the north-west coast. This well, which is fifty miles north of Legendre Island, produced the first oil flow from any sea well on the Western Australian continental shelf. With the exception of Barrow Island, no commercial development of these discoveries has yet been undertaken.

In 1969 exploration in the Dongara and Mondarra areas was intensified in order to obtain an estimate of the gas reserves in these localities. In addition, during the year an offshore drilling rig and two floating drilling vessels carried out drilling at various locations in waters adjacent to Western Australia.

Information on petroleum exploration expenditure and on drilling in Western Australia for the five years 1964 to 1968 is given in the tables below. These figures have been compiled from data published by the Commonwealth Bureau of Mineral Resources, Geology and Geophysics.

Petroleum exploration is defined as consisting of the search for, and or appraisal of, deposits of crude petroleum and/or gas by geological, geophysical, geochemical and other means, including drilling. Included in the expenditure are the costs of drilling exploratory oil and/or gas wells and the testing of such wells. Also included are the costs of access roads, site construction, permits, licences and similar fees, relevant office buildings and furniture, transportation equipment, storage facilities, plant and equipment and review work if primarily for the purposes of exploration for deposits of petroleum or natural gas. The cost of drilling developmental oil and/or gas wells and expenditure on production facilities, and pipelines and production costs, etc. are excluded.

PRIVATE PETROLEUM EXPLORATION—EXPENDITURE AND SOURCE OF FUNDS
($'000)

Particulars	1964 (a)	1965	1966	1967	1968
Private expenditure (b)—					
Geological	299	507	482	1,159	449
Geophysical	6,095	8,898	9,242	7,282	6,027
Drilling	4,705	7,068	7,829	6,397	17,462
Other	459	260	1,069	649	2,207
Total	11,558	16,732	18,621	15,488	26,145
Source of funds—					
Private sources	9,671	14,245	15,267	12,047	22,118
Government subsidy (c)	1,887	2,487	3,355	3,441	4,027

(a) Includes expenditure on development. (b) Includes expenditure financed by payments under the *Petroleum Search Subsidy Act* 1959-1969 (Commonwealth). (c) Comprises payments under the *Petroleum Search Subsidy Act* 1959–1969.

PRIVATE PETROLEUM EXPLORATION—WELLS AND FOOTAGE DRILLED (a)

Particulars		1964 (a)	1965	1966	1967	1968
Wells drilled (b)	No.	16	37	37	194	127
Average total depth of wells drilled (c)	ft	7,039	5,394	6,449	5,444	5,832
Wells completed as potential oil producers	No.	3	14	12	164	53
Wells completed as potential gas producers	No.	2	2	5	2	1
Wells drilled or drilling over 10,000 ft	No.	3	5	7	4	5
Footage drilled—						
Completed wells	ft	85,546	183,786	178,681	561,324	406,189
Uncompleted holes (d)	ft	14,426	30,812	21,448	7,714	30,811
Total footage drilled	ft	99,972	214,598	200,129	569,038	437,000

(a) With the exception of 'Average total depth of wells drilled' for 1967 and 1968, the data include particulars for developmental wells. (b) Number of holes which reached total depth during the year. (c) See footnote (a). (d) Comprises wells suspended and wells on which drilling was in progress at 31 December of the year shown.

Chapter VIII—continued

Part 2—Secondary Industry

EXPLANATORY NOTES AND DEFINITIONS

The figures quoted in this Part cover all industrial establishments conforming to the definition of a factory, including power stations and gas works.

Factory

For statistical purposes a factory is defined as any establishment which is engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used.

Employment

Average employment figures may be expressed as an average ' over the period worked ' or as an average ' over the whole year '. Thus, a factory which operates for only six months of the year and employs twenty persons throughout that period has an average employment of twenty ' over the period worked ' but an average of only ten ' over the whole year '. Where seasonal industries, such as meat and fish preserving, whaling or fruit packing, are involved there can consequently be a considerable difference between figures covering the same field if different bases are used in their computation. In this Part, unless otherwise stated, employment figures are quoted as an average ' over the whole year ' and include working proprietors, but exclude all persons engaged in obtaining raw materials (*e.g.* fallers and haulers employed by sawmills) and all persons engaged in selling and distribution.

Salaries and Wages

Salaries and wages quoted exclude amounts drawn by working proprietors.

Value of Output

The value of output is the selling value ' at the factory ' (*i.e.* the value at the point of sale less all selling and distribution costs) of all goods made or processed during the year and includes the amount received for other work done, such as repair work, assembling and making-up for customers. Any bounty or subsidy received on finished products is included.

Net Production

' Net Production ' is the value added in the course of manufacture and is the sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. It is obtained by deducting from the value of output the cost of goods consumed in the process of production. The costs deducted are those of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. Much of the output of primary industry becomes raw material of secondary industries and value of net production should therefore be used when comparing or combining values for secondary industries with those for primary industries.

Confidential Information

The Acts under which these statistics are collected require that information supplied on any individual return must be treated as confidential. For this reason it has not been possible to publish some items and in other cases it has been necessary to combine details for publication. The tables affected carry appropriate footnotes.

THE CLASSIFICATION OF FACTORIES

In the compilation of statistical data relating to factories in Australia, a standard classification of manufacturing industries is used. It is designed in accordance with decisions of the 1945 Conference of Statisticians, and represents a revision and extension of a classification which was introduced in 1930-31, replacing the revised versions of the original classification formulated in 1902. The construction of a new classification, compatible with the United Nations International Standard Industrial Classification, is being undertaken and a preliminary edition of the new classification was introduced for the 1968-69 factory census.

Where the nature of the goods produced would place a factory in more than one sub-class of industry but its activities cannot be thus separated, it is classified according to its predominant activity.

Owing to limitations of space, details published in general tables in this Part are confined to the sixteen classes of industry. Details relating to each of the sub-classes applicable to this State may be found in the *Statistical Register of Western Australia—Part VI, Factory Statistics.*

The classes and sub-classes in the classification of factories used for the 1967-68 factory census and earlier years are shown below. In the case of several of the sub-classes listed there is no recorded activity in Western Australia.

CLASSIFICATION OF FACTORIES

CLASS 1. TREATMENT OF NON-METALLIFEROUS MINE AND QUARRY PRODUCTS

Coke works
Briquetting and pulverised coal
Carbide
Lime, plaster of paris, asphalt
Fibrous plaster and products
Marble, slate, etc.
Cement, portland
Asbestos cement sheets and mouldings
Other cement goods
Other

CLASS 2. BRICKS, POTTERY, GLASS, ETC.

Bricks and tiles
Earthenware, china, porcelain, terracotta
Glass (other than bottles)
Glass bottles
Other

CLASS 3. CHEMICALS, DYES, EXPLOSIVES, PAINTS, OILS, GREASE

Industrial and heavy chemicals and acids
Pharmaceutical and toilet preparations
Explosives (including fireworks)
White lead, paints, varnishes
Oils, vegetable
Oils, mineral
Oils, animal
Boiling down, tallow refining
Soap and candles
Chemical fertilisers
Inks, polishes, etc.
Matches
Other

CLASS 4. INDUSTRIAL METALS, MACHINES, IMPLEMENTS AND CONVEYANCES

Smelting, converting, refining, and rolling of iron and steel
Foundries (ferrous)
Plant, equipment and machinery (including machine tools)
Other engineering
Extracting and refining of other metals; alloys
Electrical machinery, cables and apparatus
Construction and repair of vehicles—
  Tramcars and railway rolling stock—
    Government and municipal
    Other
  Motor vehicles—
    Construction and assembly
    Repairs
  Motor bodies
  Horse-drawn vehicles
  Motor accessories
  Aircraft
  Cycles and accessories
  Other
Ship and boat building and repairing, marine engineering—
  Government
  Other
Cutlery and small hand tools
Agricultural machines and implements
Non-ferrous metals—
  Rolling and extrusion
  Founding, casting, etc.
Sheet metal working, pressing, and stamping
Pipes, tubes and fittings (ferrous)
Wire and wire working (including nails)

CLASS 4. INDUSTRIAL METALS, MACHINES, IMPLEMENTS AND CONVEYANCES (*continued*)
Stoves, ovens, and ranges
Gas fittings and meters
Lead mills
Sewing machines
Arms and ammunition (excluding explosives)
Wireless and amplifying apparatus
Other metal works

CLASS 5. PRECIOUS METALS, JEWELLERY, PLATE
Jewellery
Watches and clocks (including repairs)
Electroplating (gold, silver, chromium, etc.)

CLASS 6. TEXTILES AND TEXTILE GOODS (INCLUSIVE OF KNITTED GOODS)
Cotton ginning
Cotton spinning and weaving
Wool—carding, spinning, weaving
Hosiery and other knitted goods
Silk, natural
Rayon, nylon, and other synthetic fibres
Flax mills
Rope and cordage
Canvas goods (tents, tarpaulins, etc.)
Bags and sacks
Textile dyeing, printing and finishing
Other

CLASS 7. SKINS AND LEATHER (NOT CLOTHING OR FOOTWEAR)
Furriers and fur dressing
Woolscouring and fellmongery
Tanning, currying, and leather dressing
Saddlery, harness and whips
Machine belting (leather or other)
Bags, trunks and other goods of leather and leather substitutes

CLASS 8. CLOTHING (EXCEPT KNITTED)
Tailoring and ready-made clothing
Waterproof and oilskin clothing
Dressmaking, hemstitching
Millinery
Shirts, collars, underclothing
Foundation garments
Handkerchiefs, ties, scarves
Hats and caps
Gloves
Boots and shoes (not rubber)
Boot and shoe repairing
Boot and shoe accessories
Umbrellas and walking sticks
Dyeworks and cleaning (including renovating and repairing)
Other

CLASS 9. FOOD, DRINK, AND TOBACCO
Flour milling
Cereal foods and starch
Animal and bird foods
Chaffcutting and corncrushing
Bakeries (including cakes and pastry)
Biscuits
Sugar mills
Sugar refining
Confectionery (including chocolate and icing sugar)
Jam, fruit and vegetable canning

CLASS 9. FOOD, DRINK, AND TOBACCO (*continued*)
Pickles, sauces, vinegar
Bacon curing
Butter factories
Cheese factories
Condensed and dried milk factories
Margarine
Meat and fish preserving
Condiments, coffee, spices, etc. (including tea blending and packing, food packing, etc.)
Ice and refrigerating
Salt
Aerated waters, cordials, etc.
Breweries
Distilleries
Wine-making
Cider and perry
Malting
Bottling
Tobacco, cigars and cigarettes
Dehydrated fruit and vegetables
Ice cream
Sausage casings
Arrowroot
Other

CLASS 10. SAWMILLING, WOODWORKING AND BASKETWARE
Sawmills—sawing from the log
Sawmills—resawing, dressing, etc.
Plywood mills (including veneers)
Bark mills
Joinery
Cooperage
Boxes and cases
Woodturning, woodcarving, etc.
Basketware, wickerware, etc.
Perambulators
Wall and ceiling boards (not plaster or cement)
Other

CLASS 11. FURNITURE OF WOOD, BEDDING, ETC.
Cabinet, furniture making and upholstery
Bedding and mattresses (not wire)
Furnishing drapery
Picture frames
Window and verandah blinds

CLASS 12. PAPER, STATIONERY, PRINTING, BOOKBINDING, ETC.
Newspapers and periodicals
Printing, government
Printing, general (including bookbinding)
Stationery and paper products
Stereotyping, electrotyping
Process and photo-engraving
Cardboard boxes, cartons, and containers
Paper bags
Paper making
Pencils, penholders, chalks, crayons
Other

CLASS 13. RUBBER
Rubber goods (including tyre making)
Tyre retreading and repairing

CLASS 14. MUSICAL INSTRUMENTS
Gramophones and gramophone records
Pianos, piano-players, organs, etc.
Other

CLASS 15. MISCELLANEOUS PRODUCTS

Linoleum, oilcloth, etc.
Bone, horn, ivory, and shell
Plastic moulding and products
Brooms and brushes
Optical instruments and appliances
Surgical and other scientific instruments and appliances
Photographic material, developing, etc.
Toys, games, and sports requisites
Artificial flowers
Other

CLASS 16. HEAT, LIGHT, AND POWER

Electric light and power—
  Government
  Local authority
  Other

Gas works—
  Government
  Local authority
  Other

HISTORICAL REVIEW

While secondary industry in Western Australia has grown considerably since 1900 the greatest advance both in the number and the size of factories operating has occurred since 1945. One of the factors contributing to this growth has been the provision of adequate power in the south-western portion of the State by the expansion of electricity supplies provided by generating stations linked in a grid system.

In 1900 there were 632 factories operating in Western Australia. By 1910 the number had risen to 822 and by 1920 to 998. Progress during the first World War was comparatively slow, mainly because the more advanced manufacturing facilities already existing in other States were better suited to rapid development. During the decade 1921-1930, however, efforts were made to foster Western Australian secondary industry and considerable success was achieved during the latter years of this period, the number of factories increasing from 1,170 in 1926 to 1,466 in 1930. Although some decline occurred in the depression years of 1930 to 1933, there were 1,658 factories in operation in 1935 and by 1940 the number had reached 2,129.

No immediate stimulus to the State's manufacturing activity followed the outbreak of the second World War, but the more direct threat to Australia which resulted from the fall of Singapore called for a total use of industrial potential, and from 1942 onwards an increasing volume of war contracts was placed in Western Australia. The greatest demand was for processed foodstuffs but other forms of war production which were especially developed included munitions manufacture, shipbuilding (principally of wooden coastal craft) and marine engineering. Although fewer factories operated because of the decline in those classes of production which were purely for civilian purposes, employment and output increased substantially.

Production which had developed largely to meet the demands of the armed services declined sharply at the conclusion of the war and this was reflected particularly in the decreased manufacture of processed foodstuffs, the full production of which considerably exceeded civilian requirements. Secondary industry as a whole benefited greatly, however, from the engineering skills and equipment acquired in wartime activities and their transfer to civilian uses facilitated the expansion of the metal industries in the State and influenced the production of small to medium-sized machine tools and the establishment of a factory producing several types of tractors and farm machinery.

Such advances enlarged the scope of Western Australian secondary industry and by 1967-68 the number of factories had increased to 5,404. Net production per head of population, however, still remains higher in all the other States except Queensland. Manufacturing net production per head of mean population in each of the States and in Australia as a whole during 1967-68 was as follows: New South Wales, $720; Victoria, $725; Queensland, $383; South Australia, $565; Western Australia, $435; Tasmania, $522; and Australia, $623.

The average number of persons employed in Western Australian factories from 1900 to 1968 was as follows: 1900, 11,166 persons; 1905, 13,481; 1910, 14,894; 1915, 15,882; 1920, 16,942; 1925-26, 20,667; 1929-30, 19,643; 1934-35, 17,769; 1939-40, 22,967;

1944-45, 29,146; 1949-50, 40,733; 1954-55, 49,314; 1959-60, 49,651; 1964-65, 58,097; and 1967-68, 67,335. These figures indicate the moderate increase which occurred in factory employment between 1900 and 1920, the continued expansion in the 1920s, the decline in the early 1930s and the accelerated development during and after the second World War. They do not show the levels to which it fell during the first World War and during the depression years but these movements can be seen from the annual averages appearing on page 525 in the *Statistical Summary from 1829*.

The large increase between 1944-45 and 1949-50 was due in part to the establishment of many smaller types of factory, such as motor-repair workshops, dry-cleaning works and bakeries, resulting from the return to civilian life of service personnel and from unusually large population gains by natural increase and from immigration. This high level of population increase was maintained in the following five years and in 1954-55 average factory employment reached 49,314. In 1955-56 the number of persons engaged in factories exceeded 50,000 for the first time but then declined in each of the three succeeding years and in 1958-59 had fallen to 48,417. An improvement in 1959-60, when the average for the year rose to 49,651, was maintained over the next eight years and by 1967-68 employment in factories had risen to 67,335. The average number employed in Western Australian factories is exceeded by all Australian States except Tasmania.

A summary of selected items of factory activity from 1900 is given in the following table.

SELECTED ITEMS OF FACTORY ACTIVITY

Year	Number of factories	Persons employed (*a*)			Book values of—		Engines and electric motors used to drive machinery (*c*)	Net production (*d*)
		Males	Females	Total	Land and buildings (*b*)	Plant and machinery (*b*)		
					$'000	$'000	rated hp	$'000
1900	632	10,261	905	11,166	2,409	2,506	7,270	(*e*)
1905	777	11,829	1,652	13,481	3,579	3,740	11,151	(*e*)
1910	822	12,404	2,490	14,894	3,646	3,879	11,378	5,472
1915	983	13,453	2,429	15,882	5,271	5,467	21,997	6,468
1920	998	14,311	2,631	16,942	7,128	6,822	26,481	9,708
1925–26 (*f*)	1,170	17,393	3,274	20,667	9,710	10,962	37,631	19,222
1929–30	1,466	15,921	3,722	19,643	11,246	12,182	37,754	14,976
1934–35	1,658	14,248	3,521	17,769	11,347	11,527	42,520	12,570
1939–40	2,129	18,331	4,636	22,967	13,727	15,917	66,925	18,055
1944–45	1,931	22,404	6,742	29,146	15,308	16,508	80,667	25,920
1949–50	3,023	33,711	7,022	40,733	22,110	22,914	120,380	52,088
1954–55	3,727	42,294	7,020	49,314	60,460	109,916	204,848	121,912
1959–60	4,279	42,957	6,694	49,651	87,146	128,450	261,660	172,747
1963–64	4,609	48,163	7,542	55,705	118,813	155,514	327,425	230,511
1964–65	4,734	50,065	8,032	58,097	131,739	163,526	345,586	260,637
1965–66	4,906	51,464	8,818	60,282	151,047	197,210	371,888	288,803
1966–67	5,167	53,981	9,776	63,757	170,308	250,858	397 513	335,788
1967–68	5,404	56,835	10,500	67,335	198,640	296,659	485,644	388,257

(*a*) Average number employed over the whole year; includes working proprietors and, up to and including 1925–26, fallers and haulers employed by sawmills. (*b*) Includes estimated value of rented premises and plant. (*c*) Excludes engines used in electricity generating stations and motors driven by electricity of own generation. (*d*) See *Explanatory Notes and Definitions* on page 392. (*e*) Figures not available. (*f*) Period of 18 months ended 30 June 1926.

Several relatively large concerns began to operate during the post-war years. Sharp rises in the total horsepower of engines used to drive machinery are indicative of this growth in the number of highly-mechanised works. Increases in net production and the enhanced values of land and building and of plant and machinery are also significant, but when considering these figures allowances should be made for price changes which occurred during the period.

In recent years the scope of Western Australian secondary industry has been enlarged by the introduction of large and medium sized factories engaged in such activities as oil refining, steel rolling, titanium dioxide extraction, paper production, alumina refining, cotton ginning, rubber tyre manufacture, blast furnace operations, iron ore pelletising, explosives manufacture and ammonium nitrate production.

GENERAL SUMMARY

During the past ten years the number of factories in Western Australia increased by 31 per cent from 4,125 to 5,404 and the average number of persons employed in factories increased by 39 per cent from 48,417 to 67,335. By comparison, during the same period the total number of factories in Australia rose by 14 per cent from 55,098 to 62,954 and the average number of persons in factory employment increased from 1,090,863 to 1,331,147, a gain of 22 per cent.

The table below shows the number of factories in each State and Territory of Australia for the five years 1963-64 to 1967-68.

NUMBER OF FACTORIES—AUSTRALIA

States and Territories	1963–64	1964–65	1965–66	1966–67	1967–68
New South Wales	23,642	24,368	24,531	24,849	24,884
Victoria	17,597	17,925	17,980	18,053	18,030
Queensland	5,955	5,962	6,010	6,013	6,154
South Australia	5,826	5,887	6,065	6,222	6,255
Western Australia	4,609	4,734	4,906	5,167	5,404
Tasmania	1,746	1,805	1,792	1,771	1,797
Northern Territory	n.a.	174	185	187	188
Australian Capital Territory	n.a.	187	217	238	242
AUSTRALIA	(a) 59,375	61,042	61,686	62,500	62,954

n.a. denotes 'not available,'
(a) Excludes Northern Territory and Australian Capital Territory.

In the following table factory activity in Western Australia during 1967-68 is compared with that of the other Australian States and Territories. The greatest number of factories is located in New South Wales which also produced the highest value of output and net production. Victoria ranks second in terms of output followed by Queensland and South Australia. Western Australian factory output exceeded only that of Tasmania, Northern Territory and the Australian Capital Territory.

PRINCIPAL ITEMS OF FACTORY STATISTICS—AUSTRALIA, 1967-68

States and Territories	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of— Materials used (c)	Power, fuel and light used (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			$'000	$'000	$'000	$'000	$'000	$'000
New South Wales	24,884	531,185	1,498,067	3,712,895	252,639	3,130,982	7,096,517	3,828,140
Victoria	18,030	449,945	1,244,216	2,813,424	143,086	2,394,801	5,351,311	2,685,255
Queensland	6,154	120,852	305,955	1,072,543	51,871	657,853	1,782,267	946,728
South Australia	6,255	121,417	330,060	788,018	56,205	631,890	1,476,113	813,610
Western Australia	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,299
Tasmania	1,797	35,178	96,236	227,573	19,485	198,018	445,076	448,047
Northern Territory	188	1,519	4,983	7,995	1,157	9,680	18,831	14,846
Australian Capital Territory	242	3,716	11,285	16,382	830	19,372	36,583	33,432
AUSTRALIA	62,954	1,331,147	3,665,902	9,104,383	558,834	7,430,853	17,094,070	9,265,359

(a) Average number employed over the whole year; includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water. (e) See *Explanatory Notes and Definitions* on page 392. (f) Book values at end of year; includes estimated value of rented premises and plant.

Composition of Secondary Industry

In common with the majority of Australian States the main classes of secondary industry in Western Australia, measured by the value of net production, are Class 3—Chemicals, dyes, explosives, paints, oils, grease; Class 4—Industrial metals, machines, implements and conveyances; and Class 9—Food, drink and tobacco. This is shown in the following table which gives, for each of the sixteen classes, the principal statistics of factory activity for 1967-68.

PRINCIPAL ITEMS ACCORDING TO CLASS OF INDUSTRY, 1967-68

Class of industry	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of— Materials used (c)	Power, fuel and light used (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			$'000	$'000	$'000	$'000	$'000	$'000
1. Treatment of non-metalliferous mine and quarry products	173	2,129	6,202	18,342	1,883	18,900	39,125	18,231
2. Bricks, pottery, glass, etc.	47	1,796	5,334	3,849	2,034	11,284	17,168	9,713
3. Chemicals, dyes, explosives, paints, oils, grease	92	3,209	10,524	98,854	5,360	47,426	151,640	63,055
4. Industrial metals, machines, implements, conveyances	2,824	31,694	85,426	158,212	7,153	159,303	324,668	196,152
5. Precious metals, jewellery, plate	94	288	529	392	80	1,207	1,680	994
6. Textiles and textile goods (inclusive of knitted goods)	37	758	1,560	4,959	161	3,015	8,134	3,222
7. Skins and leather (not clothing or footwear)	24	549	1,296	1,653	152	2,230	4,036	1,590
8. Clothing (except knitted)	327	3,015	4,340	4,467	198	7,523	12,187	6,152
9. Food, drink and tobacco	629	9,340	22,575	111,632	3,162	53,565	168,359	56,872
10. Sawmilling, woodworking and basketware	479	6,084	15,402	29,298	947	30,003	60,248	15,903
11. Furniture of wood, bedding, etc.	218	1,840	3,886	8,903	84	7,651	16,638	5,022
12. Paper, stationery, printing, bookbinding, etc.	167	3,722	10,044	15,775	701	19,709	36,186	25,139
13. Rubber	49	508	1,352	3,254	147	2,866	6,267	2,696
14. Musical instruments	7	29	55	14	1	83	98	99
15. Miscellaneous products	145	1,010	2,042	3,423	116	4,273	7,811	4,628
Total, Classes 1 to 15	5,312	65,971	170,567	463,028	22,180	369,037	854,246	409,468
16. Heat, light and power	92	1,364	4,534	2,526	11,381	19,220	33,126	85,832
TOTAL, ALL CLASSES	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,300

(a) Average number employed over the whole year; includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water (e) See *Explanatory Notes and Definitions* on page 392. (f) Book values at end of year; includes estimated value of rented premises and plant.

Location of Secondary Industry

Two-thirds of the State's factories, including those situated in the rapidly developing complex at Kwinana, are located in the Perth Statistical Division, which contains the greatest population, both in number and density. The adjoining South-West Statistical Division ranks next to the Perth Division in total population and number of factories.

PRINCIPAL ITEMS ACCORDING TO STATISTICAL DIVISIONS, 1967-68

Statistical Division	Number of factories	Persons employed (a)	Salaries and wages (b)	Value of— Materials used (c)	Power, fuel and light used (d)	Net production (e)	Output (e)	Land, buildings, plant and machinery (f)
			$'000	$'000	$'000	$'000	$'000	$'000
Perth	3,647	55,564	146,415	379,148	21,535	315,601	716,283	351,843
South-West	527	4,996	12,332	27,467	5,986	35,685	69,137	63,086
Southern Agricultural	299	1,985	4,335	14,397	489	9,600	24,486	10,448
Central Agricultural	346	1,691	3,560	8,718	1,569	7,131	17,417	5,590
Northern Agricultural	255	1,296	2,937	18,722	573	6,947	26,242	6,859
Eastern Goldfields	187	954	2,204	4,780	1,562	4,863	11,206	9,365
Central	12	40	110	121	177	255	553	427
North-West	37	200	543	1,414	150	1,091	2,655	1,397
Pilbara	50	279	1,447	5,706	955	4,166	10,827	38,324
Kimberley	44	330	1,217	5,082	567	2,917	8,567	7,961
WESTERN AUSTRALIA	5,404	67,335	175,100	465,554	33,561	388,257	887,372	495,300

(a) Average number employed over the whole year; includes working proprietors. (b) Excludes amounts drawn by working proprietors. (c) Includes containers and repairs to buildings, plant, etc. (d) Includes lubricating oil and water. (e) See *Explanatory Notes and Definitions* on page 392. (f) Book values at end of year; includes estimated value of rented premises and plant.

The Perth and South-West Divisions together contain approximately three-quarters of the total population of the State. Other factors influencing the concentration of manufacturing industry in the area are the easier availability of raw materials and the provision of adequate power and fuel supplies and transport facilities. Electric power is distributed over most of the area through a grid system established by the State Electricity Commission, and a map showing the distribution of supplies by the Commission as at 30 June 1966 appeared in the *Western Australian Year Book*, No. 6—1967. The only coal deposits in the State at present being worked are in the South-West Division near Collie, some 120 miles to the south of Perth. These Divisions also contain well-developed road and railway systems, the State's principal port at Fremantle and other ports at Bunbury and Busselton.

Reference to manufacturing activity in the several Statistical Divisions of the State is also made in the section *Geographical Distribution of Industry* which appears at the beginning of this Chapter. The boundaries of each Statistical Division are shown on the map of the State following the Index. Details of the individual local government areas of which each Statistical Division is composed are given in a list on page 536.

Number of Factories and Persons Employed

The major increase in both the number of factories and employment in the last ten years has occurred in Class 4—Industrial metals, machines, implements and conveyances. Other large increases in employment have also occurred in Class 9—Food, drink and tobacco, and Class 12—Paper, stationery, printing, bookbinding, etc.

Variations in the number of Western Australian factories in each class of secondary industry over the last five-year period are shown in the following table.

NUMBER OF FACTORIES ACCORDING TO CLASS OF INDUSTRY

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	149	148	156	157	173
2. Bricks, pottery, glass, etc.	49	48	49	47	47
3. Chemicals, dyes, explosives, paints, oils, grease	76	80	87	89	92
4. Industrial metals, machines, implements, conveyances	2,160	2,305	2,449	2,653	2,824
5. Precious metals, jewellery, plate	86	90	93	91	94
6. Textiles and textile goods (inclusive of knitted goods)	42	36	34	35	37
7. Skins and leather (not clothing or footwear)	23	24	24	23	24
8. Clothing (except knitted)	368	359	338	333	327
9. Food, drink and tobacco	621	626	623	633	629
10. Sawmilling, woodworking and basketware	454	443	449	469	479
11. Furniture of wood, bedding, etc.	181	178	190	196	218
12. Paper, stationery, printing, bookbinding, etc.	148	155	160	170	167
13. Rubber	58	61	60	56	49
14. Musical instruments	7	7	6	6	7
15. Miscellaneous products	90	86	100	123	145
Total, Classes 1 to 15	4,512	4,646	4,818	5,081	5,312
16. Heat, light and power	97	88	88	86	92
TOTAL, ALL CLASSES	4,609	4,734	4,906	5,167	5,404

The following table shows the number of factories classified according to the number of persons employed and the total employment in each size group of factories. Although there were 5,404 factories operating in 1967-68, only eighty-eight or less than 2 per cent had an average employment in excess of 100 persons, while 4,166 factories, or slightly more than 77 per cent of the total, employed ten persons or less.

In 1967-68 the six largest factories were responsible for over 9 per cent of total factory employment. By contrast, however, the 2,558 factories employing under four persons, while constituting over 47 per cent of the total number of factories in the State, accounted for less than 7 per cent of employment, including a considerable number of working proprietors.

FACTORIES CLASSIFIED ACCORDING TO NUMBER OF PERSONS EMPLOYED

Year	Factories employing on the average (*a*)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
1963-64	2,298	1,325	447	342	115	79	3	4,609
1964-65	2,308	1,394	460	368	124	75	5	4,734
1965-66	2,421	1,397	494	381	123	84	6	4,906
1966-67	2,503	1,505	525	411	134	84	5	5,167
1967-68	2,558	1,608	559	440	151	82	6	5,404
PERSONS EMPLOYED (*a*)								
1963-64	4,222	8,001	6,473	10,737	7,968	14,806	4,656	56,863
1964-65	4,173	8,405	6,607	11,485	8,796	13,958	5,785	59,209
1965-66	4,440	8,495	7,092	11,930	8,525	15,036	6,076	61,594
1966-67	4,643	9,126	7,659	13,002	9,325	15,501	5,659	64,915
1967-68	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790

(*a*) Average over period of operation; includes working proprietors.

The size structure of Western Australian factories, and the employment in those factories, is compared with that of the other Australian States and Territories in the following table.

Of the 283 factories in Australia employing over 500 persons on the average over the period of operation, 124 were located in New South Wales and 97 in Victoria. The number in Western Australia was six.

More persons were engaged in factories in Western Australia employing 101 to 500 workers than any other size category.

FACTORIES AND PERSONS EMPLOYED—AUSTRALIA, 1967-68

States and Territories	Factories employing on the average (*a*)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
New South Wales	10,363	7,615	3,033	2,217	829	703	124	24,884
Victoria	5,896	5,919	2,564	1,994	825	735	97	18,030
Queensland	2,103	2,207	831	569	229	196	19	6,154
South Australia	3,068	1,679	681	459	193	148	27	6,255
Western Australia	2,558	1,608	559	440	151	82	6	5,404
Tasmania	728	592	225	156	44	43	9	1,797
Northern Territory	67	83	25	10	3	....	....	188
Australian Capital Territory	72	92	46	23	5	3	1	242
AUSTRALIA	24,855	19,795	7,964	5,868	2,279	1,910	283	62,954
PERSONS EMPLOYED (*a*)								
New South Wales	19,155	47,124	44,256	69,720	57,837	140,639	155,005	533,736
Victoria	11,624	36,884	37,579	62,871	57,913	148,534	97,456	452,861
Queensland	4,274	13,541	12,208	17,715	15,937	40,649	17,120	121,444
South Australia	5,483	10,251	9,960	14,452	13,550	29,762	38,613	122,071
Western Australia	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790
Tasmania	1,380	3,597	3,248	5,004	3,183	7,874	11,150	35,436
Northern Territory	123	509	345	356	201	....	....	1,534
Australian Capital Territory	160	531	678	719	348	589	708	3,733
AUSTRALIA	46,995	122,123	116,273	184,453	159,680	383,653	326,428	1,339,605

(*a*) Average over period of operation; includes working proprietors.



OIL REFINERY BY NIGHT

The BP oil refinery illustrated occupies an area of some 1,000 acres at Kwinana, south of Perth. Established in 1955, the refinery processes a range of petroleum products from crude oil obtained from the Middle East and from Barrow Island off the north-west coast. It was expanded in 1963 to produce lubricating oils.

FACTORIES ACCORDING TO CLASS OF INDUSTRY AND PERSONS EMPLOYED, 1967-68

Class of industry	Factories employing on the average (a)							
	Less than 4 persons	4 to 10 persons	11 to 20 persons	21 to 50 persons	51 to 100 persons	101 to 500 persons	Over 500 persons	Total
NUMBER OF FACTORIES								
1. Treatment of non-metalliferous mine and quarry produets	54	76	21	16	3	3	....	173
2. Bricks, pottery, glass, etc.	11	11	5	9	7	4	....	47
3. Chemicals, dyes, explosives, paints, oils, grease	28	26	9	13	7	8	1	92
4. Industrial metals, machines, implements, conveyances	1,493	802	258	176	54	38	3	2,824
5. Precious metals, jewellery, plate	74	17	1	2	....	....	....	94
6. Textiles and textile goods (inclusive of knitted goods)	11	11	5	6	3	1	....	37
7. Skins and leather (not clothing or footwear)	6	4	5	6	2	1	....	24
8. Clothing (except knitted)	170	93	24	25	14	1	....	327
9. Food, drink and tobacco	273	173	80	65	26	11	1	629
10. Sawmilling, woodworking and basketware	159	180	61	57	17	5	....	479
11. Furniture of wood, bedding, etc.	100	66	29	19	3	1	....	218
12. Paper, stationery, printing, bookbinding, etc.	35	57	34	27	9	4	1	167
13. Rubber	32	8	2	5	1	1	....	49
14. Musical instruments	4	3	....	....	....	....	....	7
15. Miscellaneous products	59	58	17	8	3	....	....	145
Total, Classes 1 to 15	2,509	1,585	551	434	149	78	6	5,312
16. Heat, light and power	49	23	8	6	2	4	....	92
TOTAL, ALL CLASSES	2,558	1,608	559	440	151	82	6	5,404
PERSONS EMPLOYED (a)								
1. Treatment of non-metalliferous mine and quarry products	105	444	294	525	202	584	....	2,154
2. Bricks, pottery, glass, etc.	21	74	83	286	531	798	....	1,793
3. Chemicals, dyes, explosives, paints, oils, grease	48	185	124	387	453	1,220	835	3,252
4. Industrial metals, machines, implements, conveyances	2,831	4,759	3,674	5,349	3,769	7,242	4,442	32,066
5. Precious metals, jewellery, plate	114	107	15	53	....	....	....	289
6. Textiles and textile goods (inclusive of knitted goods)	17	66	83	167	238	189	....	760
7. Skins and leather (not clothing or footwear)	11	21	79	206	124	111	....	552
8. Clothing (except knitted)	295	559	340	731	1,070	120	....	3,115
9. Food, drink and tobacco	515	1,072	1,164	2,102	1,781	2,765	538	9,937
10. Sawmilling, woodworking and basketware	316	1,104	893	1,876	1,247	790	....	6,226
11. Furniture of wood, bedding, etc.	199	395	391	535	220	130	....	1,870
12. Paper, stationery, printing, bookbinding, etc.	68	382	489	849	677	769	561	3,795
13. Rubber	71	39	25	184	54	137	....	510
14. Musical instruments	7	22	....	....	....	....	....	29
15. Miscellaneous products	109	329	233	207	176	....	....	1,054
Total, Classes 1 to 15	4,727	9,558	7,887	13,457	10,542	14,855	6,376	67,402
16. Heat, light and power	69	128	112	159	169	751	....	1,388
TOTAL, ALL CLASSES	4,796	9,686	7,999	13,616	10,711	15,606	6,376	68,790

(a) Average over period of operation; includes working proprietors.

The following table shows employment in Western Australian factories, classified according to class of industry. The largest volume of employment is provided in Class 4—Industrial metals, machines, implements and conveyances. In 1967-68 the industries which comprise this class employed an average over the whole year of 31,694 persons, including 2,820 in government workshops engaged in constructing and repairing railway rolling stock. The next largest employer of labour was the class Food, drink and tobacco with 9,340 persons, of whom 3,004 were engaged in meat and fish preserving and 1,395 in bakeries. In the class Sawmilling, woodworking and basketware, 3,392 persons were employed in sawmills and 1,922 in joinery works. Paper, stationery, printing, bookbinding, etc. accounted for 3,722 persons, of whom 1,503 were employed in general printing and 945 in the printing of newspapers and periodicals. Persons employed in the manufacture of clothing numbered 3,015. In chemical fertiliser works, within the class Chemicals, dyes, explosives, paints, oils and grease, 1,010 workers were employed.

PERSONS EMPLOYED (*a*) ACCORDING TO CLASS OF INDUSTRY

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68		
					Males	Females	Persons
1. Treatment of non-metalliferous mine and quarry products	1,786	1,916	1,949	2,023	1,994	135	2,129
2. Bricks, pottery, glass, etc.	1,580	1,556	1,592	1,593	1,632	164	1,796
3. Chemicals, dyes, explosives, paints, oils, grease	2,761	2,920	2,923	3,003	2,900	309	3,209
4. Industrial metals, machines, implements, conveyances	24,924	26,403	27,722	29,593	29,495	2,199	31,694
5. Precious metals, jewellery, plate	229	239	252	275	250	38	288
6. Textiles and textile goods (inclusive of knitted goods)	882	828	857	824	368	390	758
7. Skins and leather (not clothing or footwear)	590	587	585	555	402	147	549
8. Clothing (except knitted)	2,984	3,047	3,063	3,162	767	2,248	3,015
9. Food, drink and tobacco	7,793	7,957	8,163	8,919	6,515	2,825	9,340
10. Sawmilling, woodworking and basketware	5,403	5,567	5,732	5,814	5,731	353	6,084
11. Furniture of wood, bedding, etc.	1,386	1,503	1,552	1,654	1,495	345	1,840
12. Paper, stationery, printing, bookbinding, etc.	3,105	3,200	3,371	3,657	2,838	884	3,722
13. Rubber	413	526	557	499	409	99	508
14. Musical instruments	34	29	23	26	29	....	29
15. Miscellaneous products	670	666	732	912	666	344	1,010
Total, Classes 1 to 15	54,540	56,944	59,073	62,509	55,491	10,480	65,971
16. Heat, light and power	1,165	1,153	1,209	1,248	1,344	20	1,364
TOTAL, ALL CLASSES	55,705	58,097	60,282	63,757	56,835	10,500	67,335

(*a*) Average number employed over the whole year; includes working proprietors.

In 1945, towards the end of the war, the ratio of male to female employment was 3·3 : 1. Within the next five years it increased to 4·6 : 1 and by June 1955, it had risen to 6·1 : 1. It then rose slowly to 6·4 : 1 in June 1961, but has since declined, the ratio in June 1968, being slightly more than 5·3 : 1.

FACTORY EMPLOYEES CLASSIFIED ACCORDING TO AGE

Month of June—	Males				Females			
	Under 16 years	16 years and under 21	21 years and over	Total	Under 16 years	16 years and under 21	21 years and over	Total
NUMBER								
1964	919	6,746	38,048	45,713	397	2,613	4,377	7,387
1965	962	7,185	39,499	47,646	409	2,855	4,718	7,982
1966	944	7,508	40,372	48,824	430	2,951	5,445	8,826
1967	792	7,804	42,972	51,568	307	2,845	6,459	9,611
1968	767	8,038	46,097	54,902	331	2,784	7,229	10,344
PERCENTAGE								
1964	2·01	14·76	83·23	100·00	5·37	35·37	59·25	100·00
1965	2·02	15·08	82·90	100·00	5·12	35·77	59·11	100·00
1966	1·93	15·38	82·69	100·00	4·87	33·44	61·69	100·00
1967	1·54	15·13	83·33	100·00	3·19	29·60	67·20	100·00
1968	1·40	14·64	83·96	100·00	3·20	26·91	69·89	100·00

The proportion of male employees aged under twenty-one years to total male employment fell consistently between 1945 and 1952. Since then it increased gradually until 1966 when it reached 17·3 per cent or slightly more than in 1948. In 1968 the proportion had declined to 16·0. The trend in junior female employment followed a somewhat similar pattern apart from the abrupt increase which occurred in the proportion in 1946, immediately after the war. However, this was due to a considerable decrease in the number of adult female employees and not to an increase in the number of juniors. The proportion then fell substantially until 1955 but increased fairly consistently during the next ten years. Since 1966 the proportion of junior females employed has fallen, due mainly to substantial increases in numbers of adult female employees. The changes which have occurred

during the five years from 1964 to 1968 in the age grouping of employees in secondary industry are illustrated in the second table on page 402 where the numbers of males and females in each group are expressed as a percentage of total factory employment for each sex.

Salaries and Wages

In most classes of secondary industry the average amount of salary and wages paid to both male and female employees has increased each year since 1946-47. In the following table details of total salaries and wages paid in 1967-68 and the averages per employee are shown for each class of industry.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY, 1967-68
(Excludes working proprietors and amounts drawn by them)

Class of industry	Total			Average per employee		
	Males	Females	Persons	Males	Females	Persons
	$'000	$'000	$'000	$	$	$
1. Treatment of non-metalliferous mine and quarry products	5,982	220	6,202	3,127	1,708	3,037
2. Bricks, pottery, glass, etc.	5,064	270	5,334	3,134	1,659	2,998
3. Chemicals, dyes, explosives, paints, oils, grease	10,043	481	10,524	3,486	1,562	3,300
4. Industrial metals, machines, implements, conveyances	81,995	3,431	85,426	2,952	1,596	2,854
5. Precious metals, jewellery, plate	482	47	529	2,787	1,336	2,543
6. Textiles and textile goods (inclusive of knitted goods)	1,020	540	1,560	2,898	1,403	2,117
7. Skins and leather (not clothing or footwear)	1,096	200	1,296	2,789	1,377	2,409
8. Clothing (except knitted)	1,243	3,097	4,340	2,400	1,416	1,605
9. Food, drink and tobacco	18,166	4,409	22,575	2,949	1,592	2,528
10. Sawmilling, woodworking and basketware	14,862	540	15,402	2,726	1,560	2,657
11. Furniture of wood, bedding, etc.	3,395	491	3,886	2,600	1,505	2,381
12. Paper, stationery, printing, bookbinding, etc.	8,759	1,286	10,044	3,205	1,479	2,789
13. Rubber	1,212	139	1,352	2,993	1,421	2,687
14. Musical instruments	55	....	55	2,303	....	2,303
15. Miscellaneous products	1,609	433	2,042	2,727	1,320	2,224
Total, Classes 1 to 15	154,983	15,583	170,567	2,964	1,522	2,728
16. Heat, light and power	4,504	30	4,534	3,389	1,482	3,361
TOTAL, ALL CLASSES	159,487	15,613	175,100	2,974	1,522	2,741

The table below shows total salaries and wages paid in each class of industry from 1963-64 to 1967-68.

SALARIES AND WAGES PAID ACCORDING TO CLASS OF INDUSTRY
(Excludes amounts drawn by working proprietors)
($'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	3,966	4,472	4,846	5,446	6,202
2. Bricks, pottery, glass, etc.	3,460	3,645	3,919	4,503	5,334
3. Chemicals, dyes, explosives, paints, oils, grease	6,824	7,741	8,398	9,327	10,524
4. Industrial metals, machines, implements, conveyances	49,141	55,827	63,536	73,563	85,426
5. Precious metals, jewellery, plate	310	339	368	466	529
6. Textiles and textile goods (inclusive of knitted goods)	1,468	1,398	1,561	1,600	1,560
7. Skins and leather (not clothing or footwear)	1,128	1,204	1,286	1,219	1,296
8. Clothing (except knitted)	3,369	3,639	3,826	4,299	4,340
9. Food, drink and tobacco	15,065	15,916	17,447	20,047	22,575
10. Sawmilling, woodworking and basketware	10,268	11,130	12,492	13,692	15,402
11. Furniture of wood, bedding, etc.	2,213	2,550	2,829	3,245	3,886
12. Paper, stationery, printing, bookbinding, etc.	6,412	6,798	7,619	9,017	10,044
13. Rubber	767	1,088	1,188	1,288	1,352
14. Musical instruments	53	50	45	52	55
15. Miscellaneous products	1,040	1,091	1,286	1,774	2,042
Total, Classes 1 to 15	105,481	116,887	130,643	149,537	170,567
16. Heat, light and power	3,034	3,090	3,528	4,060	4,534
TOTAL, ALL CLASSES	108,515	119,978	134,171	153,597	175,100

Materials Used

The cost of goods consumed in the process of production in each class of industry, for each of the years 1963-64 to 1967-68, as shown in the following table, represents the combined cost of materials, containers, tools replaced and repairs to plant and buildings. The figures exclude fuel, power, light, lubricating oil and water.

MATERIALS USED CLASSIFIED ACCORDING TO CLASS OF INDUSTRY
($'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967-68
1. Treatment of non-metalliferous mine and quarry products	8,740	10,131	11,936	13,342	18,342
2. Bricks, pottery, glass, etc.	2,087	2,334	2,625	3,165	3,849
3. Chemicals, dyes, explosives, paints, oils, grease	75,510	76,920	83,476	87,749	98,854
4. Industrial metals, machines, implements, conveyances	85,677	100,247	114,566	130,862	158,212
5. Precious metals, jewellery, plate	194	233	261	336	392
6. Textiles and textile goods (inclusive of knitted goods)	7,724	5,577	5,934	5,711	4,959
7. Skins and leather (not clothing or footwear)	1,543	1,702	2,098	1,984	1,653
8. Clothing (except knitted)	4,119	4,100	4,354	4,657	4,467
9. Food, drink and tobacco	76,138	83,937	88,180	95,558	111,632
10. Sawmilling, woodworking and basketware	18,572	20,483	22,743	25,699	29,298
11. Furniture of wood, bedding, etc.	5,480	6,537	6,747	7,567	8,903
12. Paper, stationery, printing, bookbinding, etc.	10,031	11,065	12,400	14,715	15,775
13. Rubber	1,446	2,887	3,347	2,891	3,254
14. Musical instruments	18	12	12	14	14
15. Miscellaneous products	1,725	1,795	1,994	2,839	3,423
Total, Classes 1 to 15	299,002	327,960	360,673	397,088	463,028
16. Heat, light and power	1,795	1,780	1,962	2,318	2,526
TOTAL, ALL CLASSES	300,798	329,740	362,634	399,406	465,554

Motive Power

Electricity is the most economical and convenient source of power in the principal manufacturing areas of the State and most factories have plants designed for its use. This position has become more pronounced as the installation of new major generating stations has extended the area in which adequate electric power is available. Electric motors are consequently the main source of motive power in factories. Oil engines are next in order of total horsepower produced and are still used in those country districts which are not yet supplied with power from the central generating stations.

The following table shows the various types of motive power used during the five years from 1963-64 to 1967-68.

RATED HORSEPOWER OF ENGINES (*a*) EMPLOYED TO DRIVE MACHINERY

Year	Steam		Internal combustion (*b*)			Motors driven by—		Total (*c*)
	Reciprocating	Turbine	Gas	Light oil	Heavy oil	Electricity purchased	Electricity of own generation	
1963-64	9,734	13,559	3,395	23,088	4,205	273,444	7,470	327,425
1964-65	9,680	13,559	3,395	22,300	5,883	290,769	8,651	345,586
1965-66	8,230	13,599		32,843		317,216	7,941	371,888
1966-67	8,174	13,604		29,038		346,697	8,982	397,513
1967-68	7,681	19,728		31,095		427,140	12,428	485,644

(*a*) Excludes engines held in reserve or idle and engines used in electricity generating stations. (*b*) Separate details not collected after 1964-65. (*c*) Excludes horsepower of motors driven by electricity of own generation.

Fuel Consumed

The quantity and cost of fuels used by secondary industry are shown in the following table. The fuels consumed are used for heating purposes in foundries, brick kilns and bakers' ovens as well as for steam generation, lighting and the operation of engines.

POWER, FUEL AND LIGHT USED IN FACTORIES (*a*)

Year	Coal		Coke		Wood		Fuel Oil		Electricity	Other (gas, tar fuel, etc.
	tons	$'000	tons	$'000	tons	$'000	'000 gal	$'000	$'000	$'000
1963–64	670,025	5,173	13,390	359	226,337	745	118,139	9,059	5,658	1,452
1964–65	732,424	5,709	12,394	349	211,554	682	132,347	9,701	6,352	1,826
1965–66	827,399	6,041	12,247	393	190,264	600	133,929	9,732	6,861	2,096
1966–67	857,702	5,729	11,789	388	176,871	577	159,877	11,094	7,952	2,439
1967–68	911,520	5,540	22,965	632	157,672	582	189,613	13,035	8,935	2,868

(*a*) Excludes coal, coke and fuel oil used in gas works as materials in gas making, electricity generated and used in generating stations, and gas produced and used in own works.

Value of Output and Net Production

The basis on which each of these values is computed is defined in the section *Explanatory Notes and Definitions* on page 392.

VALUE OF OUTPUT (*a*) ACCORDING TO CLASS OF INDUSTRY
($'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967–68
1. Treatment of non-metalliferous mine and quarry products	20,188	23,402	26,185	30,712	39,125
2. Bricks, pottery, glass, etc.	10,180	10,912	11,488	13,487	17,168
3. Chemicals, dyes, explosives, paints, oils, grease	113,829	119,292	127,638	135,646	151,640
4. Industrial metals, machines, implements, conveyances	173,906	204,381	232,532	272,518	324,668
5. Precious metals, jewellery, plate	934	1,041	1,155	1,428	1,680
6. Textiles and textile goods (inclusive of knitted goods)	10,292	7,919	9,115	8,782	8,134
7. Skins and leather (not clothing or footwear)	3,545	3,901	4,285	4,117	4,036
8. Clothing (except knitted)	10,044	10,437	11,300	12,136	12,187
9. Food, drink and tobacco	113,316	123,432	132,750	146,967	168,359
10. Sawmilling, woodworking and basketware	37,714	42,359	46,757	52,217	60,248
11. Furniture of wood, bedding, etc.	9,768	11,520	12,434	13,929	16,638
12. Paper, stationery, printing, bookbinding, etc.	23,664	25,716	27,537	32,269	36,186
13. Rubber	3,214	5,088	5,906	5,559	6,267
14. Musical instruments	96	88	77	89	98
15. Miscellaneous products	3,701	3,956	4,559	6,377	7,811
Total, Classes 1 to 15	534,391	593,442	653,719	736,234	854,246
16. Heat, light and power	20,667	22,979	25,032	28,991	33,126
TOTAL, ALL CLASSES	555,058	616,422	678,751	765,224	887,372

(*a*) See *Explanatory Notes and Definitions* on page 392.

VALUE OF NET PRODUCTION (*a*) ACCORDING TO CLASS OF INDUSTRY
($'000)

Class of industry	1963-64	1964-65	1965-66	1966-67	1967–68
1. Treatment of non-metalliferous mine and quarry products	10,230	11,774	12,727	15,691	18,900
2. Bricks, pottery, glass, etc.	6,736	7,128	7,446	8,728	11,284
3. Chemicals, dyes, explosives, paints, oils, grease	33,129	36,966	38,913	42,601	47,426
4. Industrial metals, machines, implements, conveyances	84,465	99,673	112,922	135,985	159,303
5. Precious metals, jewellery, plate	715	773	854	1,016	1,207
6. Textiles and textile goods (inclusive of knitted goods)	2,459	2,242	3,065	2,923	3,015
7. Skins and leather (not clothing or footwear)	1,863	2,048	2,034	1,982	2,230
8. Clothing (except knitted)	5,758	6,164	6,766	7,296	7,523
9. Food, drink and tobacco	34,730	36,969	41,936	48,615	53,565
10. Sawmilling, woodworking and basketware	18,470	21,114	23,245	25,692	30,003
11. Furniture of wood, bedding, etc.	4,233	4,923	5,620	6,289	7,651
12. Paper, stationery, printing, bookbinding, etc.	13,355	14,361	14,821	16,793	19,709
13. Rubber	1,681	2,053	2,401	2,520	2,866
14. Musical instruments	77	75	64	75	83
15. Miscellaneous products	1,913	2,093	2,489	3,437	4,273
Total, Classes 1 to 15	219,816	248,355	275,302	319,640	369,037
16. Heat, light and power	10,695	12,282	13,501	16,148	19,220
TOTAL, ALL CLASSES	230,511	260,637	288,803	335,788	388,257

(*a*) See *Explanatory Notes and Definitions* on page 392.

The annual values of net production per person employed are shown in the table below for each class of industry for the years 1963-64 to 1967-68. Net production per person employed was highest in Class 3—Chemicals, dyes, explosives, paints, oils, grease and lowest in Class 8—Clothing (except knitted).

NET PRODUCTION PER PERSON EMPLOYED (*a*) IN EACH CLASS OF INDUSTRY

Class of industry	1963–64	1964–65	1965–66	1966–67	1967–68
	$	$	$	$	$
1. Treatment of non-metalliferous mine and quarry products	5,728	6,145	6,530	7,756	8,877
2. Bricks, pottery, glass, etc.	4,264	4,581	4,677	5,479	6,283
3. Chemicals, dyes, explosives, paints, oils, grease	11,998	12,659	13,313	14,186	14,779
4. Industrial metals, machines, implements and conveyances	3,388	3,775	4,073	4,595	5,026
5. Precious metals, jewellery, plate	3,122	3,234	3,388	3,696	4,192
6. Textiles and textile goods (inclusive of knitted goods)	2,788	2,708	3,576	3,547	3,977
7. Skins and leather (not clothing or footwear)	3,158	3,489	3,477	3,570	4,062
8. Clothing (except knitted)	1,930	2,023	2,209	2,307	2,495
9. Food, drink and tobacco	4,456	4,646	5,137	5,451	5,735
10. Sawmilling, woodworking and basketware	3,418	3,793	4,055	4,419	4,932
11. Furniture of wood, bedding, etc.	3,054	3,275	3,621	3,802	4,158
12. Paper, stationery, printing, bookbinding, etc.	4,302	4,488	4,397	4,592	5,295
13. Rubber	4,070	3,903	4,310	5,049	5,642
14. Musical instruments	2,262	2,577	2,769	2,865	2,862
15. Miscellaneous products	2,854	3,143	3,401	3,768	4,230
Classes 1 to 15	4,030	4,361	4,660	5,114	5,594
16. Heat, light and power	9,180	10,652	11,167	12,939	14,091
ALL CLASSES	4,138	4,486	4,791	5,267	5,766

(*a*) Based on average employment (including working proprietors) over the whole year.

Land and Buildings, Plant and Machinery

The book values of the premises and plant used for manufacturing purposes in Western Australia are given in the following table. The amounts shown are depreciated values and do not represent the actual amount of capital invested in the items specified.

BOOK VALUES AND RENTALS OF LAND AND BUILDINGS, PLANT AND MACHINERY
($'000)

Year	Land and buildings				Plant and machinery			
	Owned by user (*a*)	Rented		Total value	Owned by user (*a*)	Rented		Total value
		Annual rental	Estimated capital value			Annual rental	Estimated capital value	
1963-64	93,758	1,670	25,055	118,813	152,741	277	2,773	155,514
1964-65	102,946	1,920	28,793	131,739	160,166	336	3,360	163,526
1965-66	119,068	2,132	31,979	151,047	193,611	360	3,599	197,210
1966-67	132,236	2,538	38,072	170,308	246,756	410	4,103	250,858
1967-68	153,936	2,980	44,704	198,640	292,332	433	4,328	296,659

(*a*) Book values at end of year.

Some indication of the degree of mechanisation in each industrial class can be obtained by relating plant and machinery to persons employed.

In the following table, book values of plant and machinery at 30 June for the three years ended 1968 are shown for each class of industry. For the purpose of calculating average value of plant and machinery per person employed, an average of the values of plant and machinery at the beginning and the end of each year has been divided by the average number of persons employed over the whole of that year, including working proprietors. The average value of plant and machinery per person employed was highest in Class 3—Chemicals, dyes, explosives, paints, oils, grease and lowest in Class 14—Musical instruments over the three years shown.

VALUE OF PLANT AND MACHINERY AND AVERAGE VALUE PER PERSON EMPLOYED BY CLASS OF INDUSTRY

Class of industry	Value of plant and machinery at 30 June—			Average value of plant and machinery per person employed (*a*)		
	1966	1967	1968	1965–66	1966–67	1967–68
	$'000	$'000	$'000	$	$	$
1. Treatment of non-metalliferous mine and quarry products	8,794	9,215	9,948	4,382	4,451	4,500
2. Bricks, pottery, glass, etc.	3,339	3,881	5,806	2,042	2,266	2,697
3. Chemicals, dyes, explosives, paints, oils, grease	42,227	41,123	44,721	15,182	13,878	13,375
4. Industrial metals, machines, implements, conveyances	49,814	81,544	110,287	1,554	2,219	3,026
5. Precious metals, jewellery, plate	166	169	227	665	610	689
6. Textiles and textile goods (inclusive of knitted goods)	1,141	1,197	1,729	1,313	1,419	1,930
7. Skins and leather (not clothing or footwear)	461	521	492	753	885	923
8. Clothing (except knitted)	1,486	1,578	1,694	475	485	543
9. Food, drink and tobacco	20,667	23,439	24,556	2,416	2,473	2,569
10. Sawmilling, woodworking and basketware	5,562	7,457	8,228	957	1,120	1,289
11. Furniture of wood, bedding, etc.	729	812	1,007	436	466	495
12. Paper, stationery, printing, bookbinding, etc.	13,172	14,467	14,623	2,734	3,779	3,908
13. Rubber	1,840	1,400	1,286	3,498	3,247	2,643
14. Musical instruments	7	7	7	330	269	247
15. Miscellaneous products	977	1,233	1,830	1,200	1,211	1,516
Classes 1 to 15	150,383	188,043	226,442	2,376	2,707	3,141
16. Heat, light and power	46,827	62,815	70,218	33,078	43,927	48,766
ALL CLASSES	197,210	250,858	296,659	2,992	3,514	4,066

(*a*) See letterpress immediately preceding table.

INDIVIDUAL INDUSTRIES

The text and tables in this section deal with factory activity in selected industries for each of the five years from 1963-64 to 1967-68. When considering employment, salaries and wages, value of output and net production, reference should be made to the section *Explanatory Notes and Definitions* on page 392. Details of production of selected commodities are given in the table on page 415.

Lime, Plaster and Plaster Sheets

Although a decrease has occurred over recent years in the number of establishments engaged in the industry, the 1967-68 value of net production represents an increase of more than 90 per cent over the corresponding figure of ten years ago. Production of fibrous plaster sheets, including small amounts manufactured by factories classified to other industries, has risen from over 1·3 million square yards in 1958-59 to almost 2·0 million square yards in 1967-68, an increase of 45 per cent for the period.

Most of the factories in this industry are situated in the Perth Statistical Division but some smaller plasterboard manufacturers operate in major country centres such as Bunbury, Geraldton, Kalgoorlie and Esperance.

LIME, PLASTER AND PLASTER SHEETS

Year	Number of factories	Land, buildings, plant and machinery (*a*)	Engines and electric motors used (*b*)	Persons employed	Salaries and wages	Power, fuel and light used (*c*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	53	1,690	3,851	460	947	248	2,055	4,292	1,989
1964–65	51	1,775	3,895	457	964	268	2,081	4,482	2,133
1965–66	50	1,851	4,320	458	1,005	286	2,426	4,970	2,259
1966–67	45	1,817	4,203	465	1,090	322	2,413	5,181	2,446
1967–68	48	2,315	4,845	496	1,258	385	2,802	5,952	2,765

(*a*) Book values at end of year. (*b*) Excludes motors driven by electricity of own generation. (*c*) Includes water and lubricants.

Cement and Cement Goods (including Asbestos Cement Sheets)

There are two producers of cement in the State and one producer of asbestos cement products including sheets, pipes and mouldings. A large number of establishments producing other cement products such as concrete bricks, blocks, tiles, pipes, culverts and curbing are also classified to the industry. Ready-mixed concrete is produced in large quantities in country areas as well as in the Perth Statistical Division.

Production data for this industry are limited by confidentiality requirements but details of usage of cement provide some indication of activity in a number of the factories classified to the industry. Cement used, excluding that used in production of asbestos cement sheets, increased from 42,174 tons ($1·0 million) in 1958-59 to 218,272 tons ($5·9 million) in 1967-68.

CEMENT AND CEMENT GOODS (INCLUDING ASBESTOS CEMENT SHEETS)

Year	Number of factories	Land, buildings, plant and machinery (*a*)	Engines and electric motors used (*b*)	Persons employed	Salaries and wages	Power, fuel and light used (*c*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	76	7,101	16,509	1,113	2,568	910	6,129	14,429	7,391
1964–65	76	11,778	21,689	1,246	3,036	1,158	7,262	16,829	8,410
1965–66	84	13,354	22,163	1,256	3,276	1,163	8,618	19,068	9,287
1966–67	91	13,961	22,153	1,314	3,748	1,279	10,109	23,189	11,801
1967–68	104	14,523	21,544	1,414	4,356	1,423	14,722	30,860	14,716

(*a*) Book values at end of year. (*b*) Excludes motors driven by electricity of own generation. (*c*) Includes water and lubricants.

Bricks, Tiles, Earthenware, Porcelain, etc.

Western Australia produces more clay bricks *per capita* than any other State and production is increasing. In 1967-68 production was 207·6 million clay bricks, valued at $8·4 million, an increase in quantity of 27 per cent over the previous year.

Other items of production in the industry include terracotta tiles, earthenware pipes, sanitary ware, refractory bricks and tableware.

BRICKS, TILES, EARTHENWARE, PORCELAIN, ETC. (*a*)

Year	Number of factories	Land, buildings, plant and machinery (*b*)	Engines and electric motors used (*c*)	Persons employed	Salaries and wages	Power, fuel and light used (*d*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	26	4,465	12,349	1,139	2,520	1,137	1,093	7,065	4,835
1964–65	26	4,525	13,287	1,110	2,669	1,233	1,251	7,708	5,224
1965–66	25	4,926	13,495	1,078	2,727	1,202	1,383	7,987	5,403
1966–67	23	5,374	13,731	1,083	3,079	1,337	1,650	9,378	6,391
1967–68	23	(*e*)	(*e*)	(*e*)	(*e*)	(*e*)	(*e*)	(*e*)	(*e*)

(*a*) Excludes cement bricks and cement roofing tiles ; see preceding table. (*b*) Book values at end of year. (*c*) Excludes motors driven by electricity of own generation. (*d*) Includes water and lubricants. (*e*) Not available for publication.

Chemical Fertilisers

Superphosphate production in Western Australia has almost trebled since 1958-59. In that year 0·5 million tons valued at $13·2 million were produced and this figure has since increased each year to 1967-68 when total production was 1·4 million tons valued at $38·6 million.

Chemical fertiliser factories are established in country centres as well as the Perth Statistical Division, plants being operated at Picton Junction, Albany, Geraldton and Esperance to meet the requirements of surrounding farm regions.

The industry produces all of the sulphuric acid required for superphosphate manufacture and smaller amounts of hydrochloric, phosphoric and nitric acids. Substantial quantities of mixed chemical fertilisers are also produced.

CHEMICAL FERTILISERS

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	8	11,398	11,512	977	2,259	364	15,335	21,514	5,814
1964–65	8	14,023	12,207	958	2,438	367	17,024	23,076	5,685
1965–66	8	13,408	13,475	901	2,521	398	21,527	29,272	7,347
1966–67	8	16,016	15,156	929	2,841	455	27,570	36,528	8,503
1967–68	9	25,556	22,229	1,010	3,412	503	32,876	44,560	11,181

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Engineering, Metal Working, Construction of Machines, etc.

Factories engaged in the production of metals and metal products, and in the repair of such products are classified to the class of industry entitled ' Industrial metals, machines, implements and conveyances '. This class includes over 50 per cent of the factories in Western Australia and, in 1967-68, it contributed over $159 million, or more than 41 per cent of the total value of net production in the State. Goods produced by these factories range from basic metal products such as pig-iron, rolled steel products and wire to electrical consumer goods such as refrigerators. Tractors, agricultural machinery and railway rolling stock are also produced.

Factories in this class are located principally in the Perth Statistical Division, the Kwinana area becoming increasingly important. Almost 90 per cent of the value of net production for the class was produced by factories in this Division.

ENGINEERING, METAL WORKING, CONSTRUCTION AND REPAIR OF VEHICLES AND MACHINES

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	2,160	77,507	99,737	24,924	49,141	3,764	85,677	173,906	84,465
1964–65	2,305	86,692	104,111	26,403	55,827	4,461	100,247	204,381	99,673
1965–66	2,449	107,126	107,044	27,722	63,536	5,043	114,566	232,532	112,922
1966–67	2,653	148,647	118,821	29,593	73,563	5,671	130,862	272,518	135,985
1967–68	2,824	196,152	181,626	31,694	85,426	7,153	158,212	324,668	159,303

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Flour Milling

There has been an overall decline in activity in the flour milling industry over recent years due mainly to a decrease in export demand. In 1958-59 production of flour, including quantities used to make self-raising flour, amounted to almost 140 thousand short tons valued at $9·1 million, whereas in 1967-68 only 111 thousand short tons were produced with a value of $8·9 million. A production peak for the ten-year period of 168 thousand short tons was achieved in 1960-61 but since then a general decline has occurred in the industry except for partial recoveries in 1963-64 and 1967-68. Production data for bran and pollard show similar trends. Consumption of wheat by the industry in 1967-68 was slightly less than 5 million bushels.

FLOUR MILLING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	15	1,885	4,758	354	736	175	10,172	11,936	1,589
1964–65	13	1,819	4,401	332	812	163	9,633	11,521	1,724
1965–66	13	1,811	4,122	291	739	143	8,472	10,347	1,732
1966–67	11	1,778	3,562	264	710	137	7,808	9,730	1,784
1967–68	11	1,707	3,562	277	780	155	8,953	10,924	1,815

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Jams, Pickles, Sauces and Vinegar

Factories classified to this industry also produce fruit juices, canned fruit and canned and quick-frozen vegetables. With the exception of one establishment processing vegetables at Albany, production is confined to the Perth Statistical Division.

JAMS, PICKLES, SAUCES AND VINEGAR

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	9	958	754	122	213	22	859	1,305	424
1964–65	8	1,090	1,125	149	250	27	792	1,313	494
1965–66	8	1,186	1,148	142	251	33	854	1,564	676
1966–67	8	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
1967–68	8	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants. (d) Not available for publication.

Bacon Curing

As well as producing bacon and ham, factories classified to this industry also manufacture substantial quantities of smallgoods and, as by-products, smaller quantities of meat and bone meal, lard and tallow. Bacon and ham production, including small amounts produced by factories classified to other industries, has risen from 6·6 million lb valued at $2·7 million in 1958-59 to 11·4 million lb valued at $6·8 million in 1967-68, an increase in quantity of 72 per cent.

All of the factories classified to this industry are situated in the Perth Statistical Division.

BACON CURING

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	4	697	1,416	329	664	84	6,151	7,501	1,265
1964–65	4	798	1,439	343	717	91	6,259	8,042	1,691
1965–66	4	1,021	1,488	329	745	87	6,633	8,228	1,507
1966–67	3	1,091	1,341	352	908	94	6,928	8,558	1,536
1967–68	3	1,085	1,364	374	1,021	103	8,060	10,570	2,407

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Butter, Cheese and Condensed and Processed Milk

With the exception of one medium-sized establishment, the factories in this industry are situated in the dairying districts of the South-West and Southern Agricultural Statistical Divisions.

A decline in butter production occurred in 1967-68, the production figure of 13·2 million lb, valued at $4·7 million, being lower than that for any year since 1958-59.

BUTTER, CHEESE AND CONDENSED AND PROCESSED MILK

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	17	2,213	4,267	344	674	151	7,091	8,587	1,345
1964–65	18	2,156	4,351	337	715	178	7,988	9,613	1,448
1965–66	19	2,258	4,611	321	742	193	7,802	9,572	1,576
1966–67	17	2,293	4,333	319	744	177	6,789	8,315	1,350
1967–68	16	2,261	4,250	304	773	167	6,399	7,880	1,314

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Aerated Waters, Cordials, etc.

The major part of the production of aerated waters and cordials is carried out in the Perth Statistical Division, country factories accounting for less than 13 per cent of total production.

Production of aerated waters, including small amounts produced by factories classified to other industries, has risen from 4·4 million gallons ($1·9 million) in 1958-59 to a peak of 10·3 million gallons ($6·9 million) in 1966-67 but declined to 9·8 million gallons ($6·8 million) in 1967-68. Cordial and syrup production have also increased although fluctuations from year to year have been evident. In 1967-68, 510 thousand gallons were produced, valued at $0·8 million.

AERATED WATERS, CORDIALS, ETC.

Year	Number of factories	Land, buildings, plant and machinery (a)	Engines and electric motors used (b)	Persons employed	Salaries and wages	Power, fuel and light used (c)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	39	1,799	1,427	335	559	60	2,246	3,590	1,285
1964–65	39	2,120	1,535	346	627	64	2,847	4,501	1,591
1965–66	39	2,180	1,611	412	840	71	3,999	5,836	1,766
1966–67	40	2,639	2,011	429	962	85	4,910	7,312	2,317
1967–68	36	2,999	2,184	441	944	88	4,976	7,289	2,225

(a) Book values at end of year. (b) Excludes motors driven by electricity of own generation. (c) Includes water and lubricants.

Sawmilling

The following table shows details of mills which saw from the log; mills engaged only in resawing operations have been excluded. Although the majority of the log-sawing mills are located in the South-West Statistical Division there are many, including some of the larger mills, operating in the Perth Statistical Division. There is also some activity in the Southern Agricultural and Central Agricultural Divisions but, in general, the mills in these areas are small in size.

Production of sawn timber (including plywood veneers and railway sleepers) has fluctuated over the last ten years. The 1967-68 production amounted to 211·7 million superficial feet valued at $24·1 million and comprised 202·0 million superficial feet from hardwoods and 9·7 million superficial feet from softwoods.

SAWMILLING (MILLS OPERATING ON LOGS) (*a*)

Year	Number of sawmills	Land, buildings, plant and machinery (*b*)	Engines and electric motors used (*c*)	Persons employed	Salaries and wages	Power, fuel and light used (*d*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	183	3,990	38,463	2,832	5,440	436	8,290	19,154	10,428
1964–65	168	4,021	39,415	2,822	5,691	473	8,868	21,209	11,869
1965–66	165	4,275	41,527	2,890	6,443	474	10,074	23,472	12,924
1966–67	160	5,304	44,553	2,728	6,553	470	10,017	23,468	12,981
1967–68	161	6,071	47,553	2,746	6,918	497	10,447	24,631	13,687

(*a*) Excludes particulars of falling and hauling. (*b*) Book values at end of year. (*c*) Excludes motors driven by electricity of own generation. (*d*) Includes water and lubricants.

Cabinet and Furniture Making and Upholstery

With the exception of a few small establishments, this industry is concentrated in the Perth Statistical Division.

Factories classified to this industry produce small quantities of joinery, doors and metal furniture in addition to wooden furniture. The value of wooden furniture produced, including small quantities produced by factories classified to other industries, has risen from $4·6 million in 1958-59 to $13·2 million in 1967-68.

CABINET AND FURNITURE MAKING AND UPHOLSTERY

Year	Number of factories	Land, buildings, plant and machinery (*a*)	Engines and electric motors used (*b*)	Persons employed	Salaries and wages	Power, fuel and light used (*c*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	162	1,757	3,509	1,048	1,652	42	3,806	6,899	3,050
1964–65	155	2,094	3,513	1,117	1,858	44	4,539	8,044	3,462
1965–66	167	2,625	3,860	1,152	2,076	51	4,664	8,773	4,058
1966–67	173	2,978	4,084	1,250	2,444	57	5,392	10,064	4,615
1967–68	193	3,986	4,503	1,403	2,996	64	6,560	12,321	5,697

(*a*) Book values at end of year. (*b*) Excludes motors driven by electricity of own generation. (*c*) Includes water and lubricants.

ELECTRICITY AND TOWN GAS UNDERTAKINGS

Electricity Generation and Transmission

Prior to the establishment of The State Electricity Commission of Western Australia in 1946, electricity was generated and distributed by a large number of independent power stations. A government-owned steam power station at East Perth supplied the metropolitan area, and small units of the same type, but privately-owned, operated in the major mining centres of Collie and Kalgoorlie. With other minor exceptions the country areas were dependent on internal combustion equipment, owned privately or by local government authorities and supplying either alternating or direct current at various voltages. Since 1946 a number of power stations have been absorbed into the Commission's network and, although there are still some independent operators generating electricity for sale or for their own industrial requirements, the Commission now supplies most of the electricity used in the State and all electricity sold in the metropolitan area. The Commission functions under the *State Electricity Commission Act, 1945-1966* and consists of nine members, including the Chairman, appointed by the Governor. Four of the Commissioners are representatives of consumers, one for the metropolitan area, two for the rest of the State and one representing commercial consumers. Of the remaining five, one is the Under Treasurer of the State or his deputy, one represents employees of the Commission and three are required to be qualified engineers.

In Western Australia, electricity is now supplied principally by steam power stations, with internal combustion equipment next in importance and a small quantity provided by a hydro-electric installation. Steam power stations accounted for 54 per cent of installed generator capacity in 1937-38 but by 1967-68 the proportion had risen to 76 per cent. In 1967-68 2,216,085 thousand kilowatts of electricity were generated, of which 1,846,405 thousand kilowatts were distributed to consumers. Coal and oil are the most important sources of energy for electricity generation, 897,922 tons of coal and 67,999,994 gallons of fuel oil being used for this purpose during 1967-68.

In the metropolitan area the Commission has modernised the 55,000 kilowatt plant at the East Perth power station and, in 1954, completed a new station at South Fremantle, with a capacity of 100,000 kilowatts. These are linked with a 120,000 kilowatt capacity power station at Bunbury, and a 240,000 kilowatt capacity power station at Muja. The Muja power station came on full load in March 1969.

One of the responsibilities undertaken by the State Electricity Commission was the administration of the *South-West State Power Scheme Act, 1945*, designed to develop electrification in the south-western portion of the State. As a first stage in this development, it acquired the Collie power station and increased its capacity from 5,000 to 12,500 kilowatts. In 1956 it installed at Wellington Dam, near Collie, a hydro-turbine which is connected to the Collie power station and operated from it by remote control. Completion of the raising of the wall of the dam in 1960 has made it possible to operate the unit at the head of water for which it was designed.

The Commission is also constructing a major power station at Cockburn Sound which will use a residual fuel from the nearby refinery at Kwinana. The first 120,000 kilowatt unit will be in commercial operation during 1970 and similar units are planned to be commissioned in 1971, 1972 and 1973.

The main interconnections are two 132,000 volt transmission lines from the Bunbury power station and two 132,000 volt lines from the Muja power station to terminal substations in the metropolitan area, and a 132,000 volt line from Muja to the Bunbury power station. A 132,000 volt transmission system linking substations is being provided to meet the increasing demand for power in the metropolitan area.

In December 1959 an amendment to the State Electricity Commission Act was passed to enable consumers to contribute towards the extension of mains beyond the distance that can be supplied economically by the Commission. At 30 June 1969 some 7,600 consumers had been connected in country and metropolitan areas under this Contributory Extension Scheme.

Minor systems which are privately-owned or controlled by local government authorities are being absorbed as the transmission lines extend into the country areas and when this work is completed all except the more sparsely-populated areas of the State will be provided with electric power of standard frequency and voltage.

ELECTRICITY GENERATING (*a*)

Year	Generating stations	Land, buildings, plant and machinery (*b*)	Engines used to drive generators	Persons employed	Salaries and wages	Power, fuel and light used (*c*)	Repairs and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	94	41,117	544,648	1,020	2,682	7,982	929	18,859	9,948
1964–65	85	38,125	544,546	1,015	2,750	8,709	879	21,105	11,517
1965–66	85	56,442	632,030	1,082	3,240	9,340	1,048	23,065	12,678
1966–67	83	74,110	762,438	1,120	3,707	10,273	1,399	27,106	15,434
1967–68	89	82,236	919,502	1,255	4,188	11,155	1,655	31,040	18,231

(*a*) Excludes particulars of transmission and distribution. (*b*) Book values at end of year. (*c*) Includes water and lubricants.

Town Gas Production

Town gas production in Western Australia is now limited to three establishments. Two works, situated at Perth and Albany, are operated by the State Electricity Commission and the third, at Fremantle, is operated privately.

During 1967-68 1,777,643 thousand cubic feet of town gas were produced from 22,776 tons of carbonised coal and 5,372,557 gallons of gas-making oil. Further details of gas production appear in the table on page 415.

GAS WORKS (*a*)

Year	Gas works	Land, buildings, plant and machinery (*b*)	Engines and electric motors used (*c*)	Persons employed	Salaries and wages	Power, fuel and light used (*d*)	Repairs, containers and materials used	Value of output	Net production
		$'000	rated hp		$'000	$'000	$'000	$'000	$'000
1963–64	3	3,374	1 432	145	352	194	866	1,807	747
1964–65	3	3,520	1,396	138	340	208	902	1,875	765
1965–66	3	3,362	1,396	127	288	230	914	1,967	823
1966–67	3	3,462	1,396	128	353	252	919	1,885	714
1967–68	3	3,596	1,396	109	346	226	871	2,085	988

(*a*) Excludes particulars of distribution. (*b*) Book values at end of year. (*c*) Excludes motors driven by electricity of own generation. (*d*) Includes water and lubricants.

GOVERNMENT FACTORIES

The activities of factories operated by the Commonwealth and State Governments and by government instrumentalities, which are included in all tables appearing elsewhere in this Part, are shown in summary form in the following table. Factories operated by local government authorities are not regarded as ' Government ' factories for the purpose of this table and are therefore excluded. They are, however, included in all other tables.

The figures shown relate to work done in the repair and maintenance of government plant and equipment; other factory activities associated with meat treatment, charcoal-iron production, printing and sawmilling; and the operations of the principal electricity and gas undertakings, which are conducted by the State Government.

SUMMARY OF GOVERNMENT FACTORY ACTIVITY

Year	Number of factories	Persons employed (*a*)	Salaries and wages paid	Value of—				
				Materials used (*b*)	Power, fuel and light used (*c*)	Net production (*d*)	Output (*d*)	Land, buildings, plant and machinery (*e*)
			$'000	$'000	$'000	$'000	$'000	$'000
1963-64	133	7,482	16,071	11,914	7,367	25,972	45,253	48,775
1964-65	135	7,549	16,882	12,189	8,046	28,288	48,523	45,589
1965-66	134	7,554	18,253	13,319	8,802	30,122	52,243	64,649
1966-67	139	7,514	19,634	15,851	8,716	34,008	58,576	68,169
1967-68	135	7,376	20,119	13,816	8,566	35,388	57,770	68,099

(*a*) Average number employed over whole year. (*b*) Includes containers and repairs to buildings, plant, etc. (*c*) Includes lubricating oil and water. (*d*) See *Explanatory Notes and Definitions* on page 392. (*e*) Book values at end of year

ARTICLES PRODUCED

The following table lists some of the principal products of secondary industry in the State and shows the quantities produced in each of the five years from 1963-64 to 1967-68. Production of many items is confidential (see note *Confidential Information* on page 393) and consequently the list is incomplete and should not be regarded as an assessment of factory development as a whole.

PRODUCTION OF SELECTED COMMODITIES (*a*)

Commodity	Unit	1963–64	1964–65	1965–66	1966–67	1967–68
Aerated waters	'000 gal	6,462	6,918	8,796	10,324	9,831
Bacon and ham	'000 lb	8,468	8,921	9,605	10,259	11,404
Bath heaters—solid fuel	number	4,717	4,621	4,498	4,312	4,556
Batteries—automotive (*b*)—						
6 volt	number	(*c*)	8,086	8,456	9,020	9,745
12 volt	number	(*c*)	21,486	23,041	27,649	29,582
Boots, shoes and sandals (*d*)	pair	748,992	850,548	847,907	875,341	906,726
Bran	ton (2,000 lb)	27,502	25,452	21,524	19,366	20,976
Bread (2 lb loaf) (*e*)	'000	58,172	57,731	57,333	58,777	61,335
Bricks (*f*)	'000	155,792	146,057	140,611	163,166	207,575
Butter	'000 lb	15,491	17,387	18,133	14,394	13,248
Cases—fruit, vegetable, etc. (including shooks)	'000	1,987	1,795	1,947	1,905	(*c*)
Cheese	'000 lb	3,373	4,051	2,712	3,807	(*g*) 4,310
Coats—sports—men's and youths'	number	1,057	877	792	775	821
Coke (including coke breeze)	ton	13,928	12,822	14,036	16,461	12,144
Cordials and syrups	gallon	281,730	337,629	428,007	510,823	509,980
Electricity generated	mil. kWh	1,318	1,474	1,639	1,903	2,216
Fibrous plaster sheets	'000 sq yd	1,642	1,597	1,716	1,743	1,954
Flour—						
Plain (*h*)	ton (2,000 lb)	143,296	134,378	113,665	101,109	110,692
Self-raising	cwt	82,548	74,206	70,515	62,548	66,111
Gas (town) produced	mil. cu ft	1,435	1,458	1,483	1,560	1,778
Hot water systems—domestic (*i*)—						
Electric	number	4,188	4,824	4,135	6,081	8,396
Other	number	5,881	7,507	9,016	9,370	10,636
Iron—pig-iron	ton	46,769	47,355	45,864	(*c*)	(*c*)
Jelly crystals	lb	867,317	992,212	972,828	954,926	934,435
Lime (quicklime)	ton	30,024	41,280	(*c*)	(*c*)	(*c*)
Macaroni, spaghetti, vermicelli	cwt	17,289	15,437	15,654	14,550	12,916
Mattresses—soft-filled (*j*)	number	47,855	59,491	66,755	62,735	61,486
Paints and enamels (*k*)	gallon	521,590	546,549	585,137	633,715	701,002
Pickles and chutneys	pint	271,486	438,066	518,540	*406,460	390,288
Plaster of paris	ton	20,929	22,263	20,994	21,573	24,960
Pollard	ton (2,000 lb)	21,732	18,975	16,210	14,187	16,996
Pyjama suits—men's and boys' (*l*)	dozen	13,063	12,555	10,582	10,054	9,028
Sauce (all types)	pint	488,120	483,594	316,818	297,144	170,171
Shirts (all types)—men's and boys'	dozen	58,952	66,489	64,905	64,070	63,153
Sleepers, railway—sawn	'000 sup. ft	46,489	53,189	58,817	53,392	48,691
Slippers	pair	143,471	109,818	140,034	176,207	125,580
Soap and soap substitutes (*m*)	cwt	65,488	54,231	65,413	71,512	75,202
Steel, constructional—fabricated	ton	34,348	39,995	52,357	58,368	73,703
Stock and poultry foods—meat and bone meal	cwt	218,832	191,662	246,040	259,713	370,548
Suits—men's and youths'—2 and 3 piece	number	10,570	10,869	9,932	9,961	9,327
Sulphuric acid	ton	306,889	326,103	404,848	455,705	535,663
Superphosphate	'000 ton	864	867	1,070	1,201	1,412
Tallow (raw and refined) (*n*)	cwt	223,081	242,347	234,099	274,236	339,591
Tiles (acoustic)—plaster	sq yd	30,140	32,052	24,595	24,024	(*c*)
Timber (from local logs)—sawn (*o*)	'000 sup. ft	195,724	207,304	211,638	204,505	211,726
Trousers—men's and youths'—						
Sports	number	126,243	150,910	131,860	91,186	107,398
Work	number	130,022	124,454	134,924	122,808	101,597
Tyres (retreaded and recapped)	number	193,872	218,146	225,168	221,359	219,501
Vinegar (including bulk)	gallon	152,920	158,457	144,597	137,296	148,687
Wire, barbed	ton	1,615	1,559	1,615	1,983	1,713
Wool—scoured	'000 lb	27,478	26,543	26,690	26,781	27,916

(*a*) Figures include quantities produced and used in own works. (*b*) Includes rebuilt batteries. (*c*) Not available for publication. (*d*) Excludes sandshoes, rubber thongs and other footwear wholly of rubber. (*e*) Includes loaves other than 2 lb size, and bread rolls, etc. in terms of 2 lb loaf equivalent. (*f*) For 1963–64, figures include all types of standard size bricks. For later years figures represent clay bricks only (all sizes). (*g*) Source: Commonwealth Dairy Produce Equalisation Committee Limited. (*h*) Includes quantities used for making self-raising flour. (*i*) Excludes solar absorber units. (*j*) Includes rubber, plastic foam and sponge. (*k*) Ready-mixed, excluding water paints. (*l*) Woven fabric. (*m*) Includes detergents. (*n*) Includes dripping. (*o*) Includes plywood veneers and railway sleepers (see separate item above).
* Revised.

DEPARTMENT OF INDUSTRIAL DEVELOPMENT

At the end of the first World War the State Government, with the object of fostering secondary industry, established a Council of Industrial Development which has since been succeeded by the Department of Industrial Development.

The functions of this Department are to assist the expansion of existing industry, foster the establishment of new industries, encourage exports, organise exhibitions and publicise Western Australian trade and industry. The Department is continuously engaged in feasibility studies relating to import replacement. It also undertakes market research and conducts investigations into the commercial possibilities of using indigenous raw materials for industrial purposes.

In carrying out these functions the Department establishes and maintains a close liaison with industry and with Government Departments responsible for the provision of services, information and finance.

The Department, in certain circumstances, may recommend that financial assistance, by way of direct loan or guarantee of a loan, be granted under the *Industry (Advances) Act, 1947-1961* to industries which are unable to obtain sufficient capital from normal sources to commence or expand operations.

CHAPTER IX—TRADE, TRANSPORT AND COMMUNICATION

Part 1—External Trade[1]

Constitutional Provisions and Legislation

By the Commonwealth of Australia Constitution Act, section 51 (1), the power to make laws with respect to trade and commerce with other countries was conferred on the Commonwealth Parliament. Under section 86 of the Constitution, the collection and control of customs and excise passed to the Executive Government of the Commonwealth on 1 January 1901.

Commonwealth legislation affecting overseas trade includes the Customs Act, the Customs Tariff and the Customs Tariff (Dumping and Subsidies) Act. The Customs Act is the administrative Act under which the Department of Customs and Excise operates. The Customs Tariff provides the statutory authority for imposing the actual rates of duty operative from time to time, while the Customs Tariff (Dumping and Subsidies) Act provides protection for Australian industry against various forms of unfair trading.

The Tariff Board Act constitutes a Tariff Board of eight members to advise the Government on matters relating to the protection and encouragement of Australian industry and on the general effect of the working of the Customs and Excise Tariffs. The Tariff Board conducts public hearings in connection with any revision of the Tariff, proposals concerning bounties, or complaints that a manufacturer is taking undue advantage of the protection afforded by the Tariff.

Sources of Statistics

Overseas trade statistics are compiled from documents obtained under the Customs Act and supplied to the Commonwealth Bureau of Census and Statistics by the Department of Customs and Excise. Particulars of Western Australia's overseas trade, as presented in this Part, have been prepared from tabulations furnished by the Commonwealth Bureau of Census and Statistics, Canberra.

Statistics of Western Australia's trade with other Australian States are compiled by the Western Australian Office of the Bureau of Census and Statistics from information contained in documents collected under authority of the *Census and Statistics Act* 1905–1966 from importers, exporters, and other persons concerned with the distribution of goods.

Classification of Commodities

Overseas trade statistics for years up to and including 1964–65 were compiled according to a Statistical Classification of Imports and Exports which, in 1964–65, contained approximately 3,700 items of import and 1,300 items of export.

On 1 July 1965 a new Australian Customs Tariff was introduced. The nomenclature used in the Tariff is that of the Convention on Nomenclature for the Classification of Goods in Customs Tariffs, an international agreement signed at Brussels on 15 December 1950. The system of naming established by the Convention has come to be known as the ' Brussels Nomenclature '.

From 1 July 1965, imports into Australia have been classified according to an *Australian Import Commodity Classification* of some 5,000 items based on the *United Nations Standard International Trade Classification, Revised,* which closely follows the Brussels tariff nomenclature.

[1] A brief account of the historical development of the external trade of Western Australia from 1829 is given in the *Western Australian Year Book*, No. 6—1967 and in all issues of the *Official Year Book of Western Australia*, No. 1—1957 (*New Series*) to No. 5—1965.

Although the basis of the classification of exports remained unchanged for 1965–66, the export section of the Statistical Classification of Imports and Exports was published separately, with some minor revisions, as the *Australian Export Commodity Classification.* A new Australian Export Commodity Classification of some 2,000 items, based on the Standard International Trade Classification, was introduced on 1 July 1966.

The Standard International Trade Classification consists of 10 broad commodity categories designated ' Sections ' and comprising 56 commodity ' Divisions ' which are further divided into 177 commodity ' Groups '. The structure of the classification serves to provide a summary of data relating to 1,312 basic items of international trade.

For the purpose of recording details of Western Australia's trade with other Australian States, a revised Interstate Trade Classification based on the new Australian Commodity Classifications, has been prepared in the Western Australian Office of the Bureau. In compiling this document, the basic items of the Australian Classifications have been compressed or expanded, according to their significance in Western Australia's trade. The Interstate Trade Classification comprises some 860 items of import and 370 items of export within the structure of commodity Sections, Divisions and Groups referred to previously. The revised Interstate Trade Classification was first used in compiling details of Western Australia's trade with other Australian States in respect of the year 1965–66.

The commodity descriptions appearing in some of the tables in this Part are, in some cases, abbreviations of the full text, which is available in the *Australian Import Commodity Classification* and the *Australian Export Commodity Classification.*

Valuation of Items of Trade

All values are recorded in Australian currency. The basis of valuation used, except in the case of imports from other Australian States, is *f.o.b.*, or its equivalent, at the port of shipment. Statistics of imports from other Australian States are recorded in terms of landed cost.

Direction of Trade

The term *Country of Origin*, as used in recording statistics of overseas trade, means the country of production; *Country of Destination* means the country to which goods were consigned at the time of export. In compiling statistics of Western Australia's interstate imports and exports, goods are classified according to the State or Territory from which or to which they were consigned.

SUMMARY OF TRADE

Statistics of Western Australia's external trade are presented in the following series of tables. Particulars relate, in all cases, to the year ended 30 June. The figures shown for exports do not include ships' stores, details of which are given in the table on page 429.

The following table shows the value of Western Australia's interstate and overseas imports and exports during each year from 1963–64 to 1967–68.

VALUE OF INTERSTATE AND OVERSEAS TRADE OF WESTERN AUSTRALIA
($'000)

Direction of trade	1963–64	1964–65	1965–66	1966–67	1967–68
INTERSTATE—					
Imports	323,176	343,899	403,054	474,852	527,052
Exports	101,229	119,954	119,619	116,030	124,505
Excess of—					
Imports over exports	221,948	223,945	283,435	358,822	402,547
OVERSEAS—					
Imports	121,677	153,540	175,690	159,390	206,980
Exports	286,714	243,078	314,404	421,325	475,260
Excess of—					
Exports over imports	165,037	89,538	138,714	261,935	268,280
TOTAL—					
Imports	444,854	497,439	578,744	634,242	734,031
Exports	387,943	363,033	434,023	537,355	599,765
Excess of—					
Imports over exports	56,911	134,407	144,721	96,887	134,266

DIRECTION OF TRADE

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA CLASSIFIED ACCORDING TO ORIGIN OR DESTINATION

($'000)

Origin or destination	Imports			Exports		
	1965–66	1966–67	1967–68	1965–66	1966–67	1967–68
INTERSTATE—						
New South Wales (*a*)	167,363	195,133	228,256	54,061	46,170	48,447
Victoria	162,573	196,801	215,044	36,531	35,741	40,405
Queensland	14,464	16,607	17,175	2,795	3,573	4,362
South Australia	52,703	59,259	59,284	19,655	23,240	23,450
Tasmania	5,649	6,707	6,742	3,385	3,199	2,526
Northern Territory	302	343	550	3,193	4,107	5,314
Total, Interstate	403,054	474,852	527,052	119,619	116,030	124,505
OVERSEAS—						
Belgium-Luxembourg	824	991	864	3,694	5,376	5,560
Canada	3,886	6,042	7,497	1,202	1,569	3,604
Ceylon	1,461	1,264	1,179	1,792	944	1,215
China (mainland)	518	616	563	30,549	46,100	61,583
China, Republic of (Formosa)	99	100	260	926	1,370	2,524
Christmas Island (Indian Ocean)	1,811	1,711	2,429	1,199	1,265	1,997
Czechoslovakia	204	238	275	987	3,369	4,054
Denmark	393	310	619	68	172	172
Fiji	28	7	3	822	708	1,113
Finland	344	545	618	89	237	49
France	1,654	1,481	3,220	12,086	12,666	14,183
Germany (East)	60	61	76	357	923	490
Germany, Federal Republic of	6,185	5,577	9,075	19,424	16,217	20,162
Gilbert and Ellice Islands	450	822	497	102	....	....
Hong Kong	769	4,330	1,421	3,952	6,074	5,023
Hungary	68	57	67	148	800	1,016
India	2,882	2,793	2,011	6,153	17,206	25,500
Indonesia	859	157	348	246	119	475
Iran	13,507	6,773	6,454	3,402	534	767
Iraq	964	2,873	715	157	45	86
Ireland	67	115	119	1,755	2,411	404
Italy	1,825	2,528	4,969	12,029	14,095	10,044
Japan	21,717	16,605	24,915	67,981	115,893	162,012
Jordan	....	1	....	11	1,531	253
Korea (North)	....	....	....	1,590	2,865	590
Kuwait	13,128	8,950	10,510	1,144	1,126	1,583
Lebanon	12	4	5	553	2,177	13
Malaysia (*b*)	2,421	1,891	2,746	5,479	4,464	5,512
Mauritius	14	9	13	526	703	774
Mexico	119	1,415	1,509	1,501	2,067	1,484
Mozambique	80	42	3	763	885	330
Nauru	1,361	2,759	4,479	....	10	....
Netherlands	1,588	1,226	3,793	2,106	6,373	7,276
New Caledonia	....	....	3	2,020	1,897	474
New Zealand	1,938	1,761	2,216	3,817	4,699	4,299
Norway	1,027	703	731	760	119	2,687
Pakistan	2,685	2,309	2,169	521	16,133	204
Philippines	114	92	232	389	392	652
Poland	50	48	54	2,483	2,228	4,420
Qatar	8,888	8,657	5,102	232	249	453
Saudi Arabia	(*c*)	....	....	666	624	827
Singapore (*d*)	756	2,194	2,699	5,886	9,904	13,598
South Africa	999	823	1,076	2,651	3,480	2,373
South Arabia, Federation of	3,693	3,026	2,582	1,505	1,232	283
Spain	1,027	322	417	548	1,117	1,020
Sweden	2,346	1,726	2,151	1,288	555	397
Switzerland	1,247	1,363	1,205	136	95	102
Thailand	56	83	76	445	517	493
Togo	1,416	1,379	1,051	....	....	....
Trucial States, Muscat and Oman	....	2,314	4,994	932	1,266	1,352
Turkey	8	9	8	1,057	1,252	948
Union of Soviet Socialist Republics	5	7	20	16,194	7,467	10,051
United Arab Republic	2	....	....	1,963	1,551	394
United Kingdom	37,719	35,383	40,141	47,460	46,290	34,621
United States of America	29,787	20,729	44,980	36,310	41,852	49,504
Yugoslavia	45	22	46	751	747	639
Zambia	....	....	....	329	1,061	298
Other	2,585	4,145	3,775	3,268	6,301	5,322
Total, Overseas	175,690	159,390	206,980	314,404	421,325	475,260
GRAND TOTAL	578,744	634,242	734,031	434,023	537,355	599,765

(*a*) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales. (*b*) To 30 September 1965, includes Singapore. (*c*) Less than $500. (*d*) Included with Malaysia to 30 September 1965.

The following table shows the proportional distribution of Western Australia's trade with overseas countries and with Australian States and Territories during each of the years 1965-66 to 1967-68.

VALUE OF IMPORTS INTO AND EXPORTS FROM WESTERN AUSTRALIA
PROPORTIONS ACCORDING TO ORIGIN OR DESTINATION
(Per cent of total)

Origin or destination	Imports			Exports		
	1965-66	1966-67	1967-68	1965-66	1966-67	1967-68
INTERSTATE—						
New South Wales (*a*)	41·52	41·09	43·31	45·19	39·79	38·91
Victoria	40·34	41·45	40·80	30·54	30·80	32·45
Queensland	3·59	3·50	3·26	2·34	3·08	3·50
South Australia	13·08	12·48	11·25	16·43	20·03	18·84
Tasmania	1·40	1·41	1·28	2·83	2·76	2·03
Northern Territory	0·07	0·07	0·10	2·67	3·54	4·27
Total, Interstate	100·00	100·00	100·00	100·00	100·00	100·00
OVERSEAS—						
Belgium-Luxembourg	0.47	0·62	0·42	1·18	1·28	1·17
Canada	2·21	3·79	3·62	0·38	0·37	0·76
Ceylon	0·83	0·79	0·57	0·57	0·22	0·26
China (mainland)	0·29	0·39	0·27	9·72	10·94	12·96
China, Republic of (Formosa)	0·06	0·06	0·13	0·29	0·33	0·53
Christmas Island (Indian Ocean)	1·03	1·07	1·17	0·38	0·30	0·42
Czechoslovakia	0·12	0·15	0·13	0·31	0·80	0·85
Denmark	0·22	0·19	0·30	0·02	0·04	0·04
Fiji	0·02	(*b*)	(*b*)	0·26	0·17	0·23
Finland	0·20	0·34	0·30	0·03	0·06	0·01
France	0·94	0·93	1·56	3·84	3·01	2·98
Germany (East)	0·03	0·04	0·04	0·11	0·22	0·10
Germany, Federal Republic of	3·52	3·50	4·38	6·18	3·85	4·24
Gilbert and Ellice Islands	0·26	0·52	0·24	0·03	....	....
Hong Kong	0·44	2·72	0·69	1·26	1·44	1·06
Hungary	0·04	0·04	0·03	0·05	0·19	0·21
India	1·64	1·75	0·97	1·96	4·08	5·37
Indonesia	0·49	0·10	0·17	0·08	0·03	0·10
Iran	7·69	4·25	3·12	1·08	0·13	0·16
Iraq	0·55	1·80	0·35	0·05	0·01	0·02
Ireland	0·04	0·07	0·06	0·56	0·57	0·08
Italy	1·04	1·59	2·40	3·83	3·35	2·11
Japan	12·36	10·42	12·04	21·62	27·51	34·09
Jordan	....	(*b*)	....	(*b*)	0·36	0·05
Korea (North)	....	....	....	0·51	0·68	0·12
Kuwait	7·47	5·62	5·08	0·36	0·27	0·33
Lebanon	0·01	(*b*)	(*b*)	0·18	0·52	(*b*)
Malaysia (*c*)	1·38	1·19	1·33	1·74	1·06	1·16
Mauritius	0·01	0·01	0·01	0·17	0·17	0·16
Mexico	0·07	0·89	0·73	0·48	0·49	0·31
Mozambique	0·05	0·03	(*b*)	0·24	0·21	0·07
Nauru	0·77	1·73	2·16	....	(*b*)	....
Netherlands	0·90	0·77	1·83	0·67	1·51	1·53
New Caledonia	....	....	(*b*)	0·64	0·45	0·10
New Zealand	1·10	1·10	1·07	1·21	1·12	0·90
Norway	0·58	0·44	0·35	0·24	0·03	0·57
Pakistan	1·53	1·45	1·05	0·17	3·83	0·04
Philippines	0·06	0·06	0·11	0·12	0·09	0·14
Poland	0·03	0·03	0·03	0·79	0·53	0·93
Qatar	5·06	5·43	2·47	0·07	0·06	0·10
Saudi Arabia	(*b*)	....	....	0·21	0·15	0·17
Singapore (*d*)	0·43	1·38	1·30	1·87	2·35	2·86
South Africa	0·57	0·52	0·52	0·84	0·83	0·50
South Arabia, Federation of	2·10	1·90	1·25	0·48	0·29	0·06
Spain	0·58	0·20	0·20	0·17	0·27	0·21
Sweden	1·34	1·08	1·04	0·41	0·13	0·08
Switzerland	0·71	0·86	0·58	0·04	0·02	0·02
Thailand	0·03	0·05	0·04	0·14	0·12	0·10
Togo	0·81	0·87	0·51	....	....	....
Trucial States, Muscat and Oman	....	1·45	2·41	0·30	0·30	0·28
Turkey	(*b*)	0·01	(*b*)	0·34	0·30	0·20
Union of Soviet Socialist Republics	(*b*)	(*b*)	0·01	5·15	1·77	2·11
United Arab Republic	(*b*)	....	....	0·62	0·37	0·08
United Kingdom	21·47	22·20	19·39	15·10	10·99	7·28
United States of America	16·95	13·01	21·73	11·55	9·93	10·42
Yugoslavia	0·03	0·01	0·02	0·24	0·18	0·13
Zambia	....	....	....	0·10	0·25	0·06
Other	1·47	2·60	1·82	1·04	1·50	1·12
Total, Overseas	100·00	100·00	100·00	100·00	100·00	100·00

(*a*) Statistics relating to trade with the Australian Capital Territory are included with those of New South Wales. (*b*) Less than 0·005 per cent. (*c*) To 30 September 1965, includes Singapore. (*d*) Included with Malaysia to 30 September 1965.

IMPORTS

The following table shows the value of the principal items of interstate and overseas imports into Western Australia during 1966–67 and 1967–68.

VALUE OF PRINCIPAL IMPORTS INTO WESTERN AUSTRALIA—SELECTED COMMODITIES
($'000)

Division	Description	1966–67			1967–68		
		Interstate	Overseas	Total	Interstate	Overseas	Total
11	Beverages, alcoholic	3,702	598	4,300	3,856	711	4,568
51	Chemical elements and compounds	4,034	5,392	9,426	5,102	9,323	14,425
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	37,546	471	38,017	37,037	468	37,505
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—						
	Soap and cleansing preparations	4,430	111	4,541	4,969	156	5,125
	Toilet preparations (except soaps)	5,416	41	5,457	5,273	35	5,307
27	Fertilisers, crude	32	7,330	7,362	52	9,794	9,846
	Food—						
04	Cereals and cereal preparations	4,068	243	4,311	4,415	304	4,719
06, 07	Confectionery	5,591	127	5,718	5,160	125	5,285
03	Fish and fish preparations	653	1,685	2,338	574	1,829	2,403
05	Fruit and vegetables—						
	Fruit—						
	Fresh	907	3	910	930	....	930
	Other	3,231	78	3,309	3,248	118	3,366
	Vegetables, fresh or preserved	3,395	338	3,733	3,731	496	4,228
01	Meat and meat preparations	2,155	25	2,180	1,525	35	1,560
02	Milk and cream	3,464	2	3,467	2,838	7	2,845
	Other food	23,152	3,253	26,404	23,830	3,552	27,381
85	Footwear, gaiters and similar articles and parts therefor	8,003	319	8,323	8,470	403	8,873
82	Furniture	2,682	202	2,883	2,764	232	2,997
59	Insecticides, fungicides and similar products	3,056	415	3,472	3,305	316	3,621
	Machinery—						
72	Electrical machinery, apparatus and appliances—						
	Domestic electrical—						
	Cooking and heating	3,536	23	3,559	3,772	41	3,813
	Refrigerators and parts	4,315	58	4,373	5,014	203	5,218
	Washing machines and parts	2,927	24	2,950	3,230	23	3,253
	Other	1,980	238	2,218	2,115	252	2,368
	Electric power machinery and switchgear	4,951	2,861	7,811	5,858	5,024	10,882
	Telecommunication apparatus	10,611	1,426	12,037	14,292	1,453	15,745
	Wire and cable, insulated	4,702	197	4,900	6,814	455	7,269
	Other	6,125	1,286	7,411	5,620	1,719	7,340
71	Other than electric—						
	Agricultural—						
	Tractors	2,069	5,063	7,132	2,695	6,842	9,538
	Other	11,776	703	12,479	11,187	718	11,905
	Excavating, levelling, tamping and boring, for earth, minerals or ores	5,619	3,954	9,574	6,588	8,545	15,132
	Internal combusion engines	2,009	3,968	5,978	2,816	7,095	9,910
	Other	22,255	13,280	35,535	28,600	18,892	47,492
54	Medicinal and pharmaceutical products	11,010	436	11,446	10,468	315	10,783
69	Metal manufactures, n.e.i.—						
	Household equipment of base metals	2,993	216	3,208	3,271	284	3,554
	Tools	4,111	1,349	5,460	3,983	1,618	5,601
	Other	15,838	2,211	18,048	16,988	2,266	19,255
	Metals—						
67	Iron and steel—						
	Pig, ingot and other primary forms	10,349	98	10,448	11,683	101	11,784
	Other	34,678	3,113	37,791	40,353	4,977	45,330
68	Non-ferrous	9,744	138	9,882	10,042	255	10,297
64	Paper, paperboard and manufactures thereof	9,471	2,951	12,422	10,997	3,527	14,524
33	Petroleum and petroleum products	3,026	36,200	39,226	3,140	33,995	37,135
89	Plastic articles, n.e.i.	4,856	209	5,065	5,204	276	5,480
58	Plastic materials, regenerated cellulose and artificial resins	4,654	1,083	5,737	4,987	1,470	6,457
86	Scientific, medical, optical and photographic equipment	5,102	1,631	6,732	6,121	1,786	7,907
00	Sheep, live	3,885	....	3,885	3,126	....	3,126
65	Textile yarn, fabrics, made-up articles and related products	18,616	9,500	28,115	18,189	8,870	27,059
12	Tobacco and tobacco manufactures	11,742	212	11,954	13,912	284	14,196
73	Transport equipment—						
	Road motor vehicles and components	61,188	10,200	71,387	71,090	14,853	85,944
	Other	8,956	4,256	13,211	15,979	13,159	29,138
62	Tyres and tubes	10,750	1,933	12,683	10,281	5,098	15,379
	All other commodities	45,491	29,942	75,433	51,557	34,677	86,234
	TOTAL	474,852	159,390	634,242	527,052	206,980	734,031

The principal imports from each of the Australian States and the Northern Territory are given in the following table.

VALUE OF PRINCIPAL IMPORTS FROM AUSTRALIAN STATES—SELECTED COMMODITIES ($'000)

Division	Description	1966–67	1967–68						
		Total	N.S.W. (b)	Vic.	Qld	S.A.	Tas.	N.T.	Total
11	Beverages, alcoholic	3,702	932	901	13	1,999	11	....	3,856
51	Chemical elements and compounds	4,034	2,919	702	365	796	320	....	5,102
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	37,546	12,779	22,970	740	473	76	....	37,037
55	Essential oils and perfume materials, toilet, polishing and cleansing preparations—								
	Soap and cleansing preparations	4,430	3,994	934	(a)	41	....	....	4,969
	Toilet preparations (except soaps)	5,416	3,745	1,340	3	185	....	....	5,273
	Food—								
04	Cereals and cereal preparations	4,068	2,402	1,569	231	213	....	....	4,415
06, 07	Confectionery	5,591	1,786	1,813	....	201	1,360	....	5,160
05	Fruit—								
	Dried	804	36	180	....	594	1	....	812
	Fresh	907	805	(a)	49	75	(a)	....	930
	Other	2,427	153	1,013	786	385	100	....	2,437
01	Meat and meat preparations	2,155	247	1,043	160	68	....	7	1,525
02	Milk and cream	3,464	2,140	693	3	2	....	....	2,838
	Other food	27,200	7,309	11,769	6,238	1,676	1,143	....	28,135
85	Footwear, gaiters and similar articles and parts therefor	8,003	2,354	5,373	241	493	8	(a)	8,470
82	Furniture	2,682	936	914	9	872	33	....	2,764
66	Glass and glassware	2,186	1,312	1,156	1	64	....	....	2,532
59	Insecticides, fungicides, etc.	3,056	2,421	864	13	7	....	....	3,305
	Machinery—								
72	Electrical machinery, apparatus and appliances—								
	Batteries	2,140	1,204	392	(a)	78	....	....	1,675
	Domestic electrical—								
	Cooking and heating	3,536	2,024	1,319	9	420	(a)	....	3,772
	Refrigerators and parts	4,315	1,940	1,857	13	1,203	....	....	5,014
	Washing machines and parts	2,927	1,661	214	....	1,355	....	....	3,230
	Electric power machinery and switchgear	4,951	2,435	2,184	346	889	4	....	5,858
	Telecommunication apparatus—								
	Radio broadcast receivers	1,724	1,364	315	10	444	....	....	2,133
	Television receivers	3,957	1,684	1,042	....	577	....	....	3,302
	Other	4,930	5,463	2,747	10	636	....	....	8,857
	Wire and cable, insulated	4,702	2,182	4,338	10	284	....	....	6,814
	Other	5,964	3,577	2,244	3	225	11	....	6,060
71	Other than electric—								
	Agricultural—								
	Tractors	2,069	768	1,826	4	97	....	....	2,695
	Other	11,776	999	8,342	77	1,769	(a)	....	11,187
	Excavating, levelling, tamping and boring, for earth, minerals or ores	5,619	3,014	3,440	5	128	1	....	6,588
	Other	24,264	13,684	12,627	964	4,110	32	....	31,416
54	Medicinal and pharmaceutical products	11,010	7,785	2,195	17	471	(a)	(a)	10,468
	Metals—								
67	Iron and steel—								
	Pig, ingot and other primary forms	10,349	6,526	5	....	5,143	8	....	11,683
	Other	34,678	34,968	2,407	78	2,899	....	....	40,353
68	Non-ferrous	9,744	7,335	1,840	41	236	590	....	10,042
64	Paper, paperboard and manufactures thereof	9,471	3,517	4,008	326	936	2,210	....	10,997
33	Petroleum and petroleum products	3,026	348	2,746	2	44	....	....	3,140
53	Pigments, paints, varnishes, etc.	3,197	1,897	846	85	291	1	....	3,120
58	Plastic materials, regenerated cellulose and artificial resins	4,654	2,145	2,530	137	175	....	....	4,987
86	Scientific, medical, optical and photographic equipment	5,102	3,070	2,862	54	131	3	....	6,121
00	Sheep, live	3,885	371	153	....	2,538	65	....	3,126
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics	8,067	3,434	4,214	67	424	216	....	8,355
	Floor coverings and the like	4,012	1,199	2,573	5	14	24	....	3,814
	Other	6,537	2,010	3,087	4	883	35	(a)	6,020
12	Tobacco and tobacco manufactures	11,742	4,019	9,852	(a)	41	....	....	13,912
69	Tools	4,111	1,994	1,645	59	173	112	....	3,983
73	Transport equipment—								
	Road motor vehicles and components	61,188	13,918	37,966	1,648	17,377	182	(a)	71,090
	Other	8,956	12,263	1,122	2,110	482	2	....	15,979
62	Tyres and tubes	10,750	3,229	6,958	3	91	....	....	10,281
	All other commodities	63,827	29,954	31,913	2,237	6,578	194	542	71,419
	TOTAL	474,852	228,256	215,044	17,175	59,284	6,742	550	527,052

(a) Less than $500. (b) Includes the value of imports from the Australian Capital Territory.

The value of overseas imports of selected commodities from the principal countries of origin is given in the table below for 1967-68.

VALUE OF OVERSEAS IMPORTS FROM PRINCIPAL COUNTRIES OF ORIGIN
SELECTED COMMODITIES, 1967-68
($'000)

Division	Description	Canada	Germany, Federal Republic of	Italy	Japan	United Kingdom	United States of America	Other	Total
11	Beverages, alcoholic	....	4	34	1	582	4	86	711
51	Chemical elements and compounds—								
	Inorganic	261	68	(a)	1,120	857	657	489	3,452
	Organic	105	669	645	2,735	169	181	1,360	5,865
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	1	14	30	61	219	3	142	468
27	Crude fertilisers and crude minerals—								
	Fertilisers	....	....	....	....	....	758	(b)9,036	9,794
	Sulphur and unroasted iron pyrites	3,116	....	....	....	....	1,758	1,930	6,804
57	Explosives and pyrotechnic products	6	(a)	....	....	182	859	11	1,058
56	Fertilisers, manufactured	89	228	....	526	80	617	779	2,320
03	Fish, fresh, chilled or frozen	8	64	....	179	210	3	422	887
66	Glass and glassware	1	100	32	113	286	160	429	1,122
67	Iron and steel—								
	Bars, rods, angles, shapes and sections	16	....	....	32	203	11	151	413
	Tubes, pipes and fittings	....	139	25	1,984	466	362	158	3,134
	Machinery—								
72	Electrical machinery, apparatus and appliances—								
	Electric power machinery and switchgear—								
	Generators	1	2	....	75	1,533	265	55	1,931
	Motors	(a)	25	1	235	599	145	9	1,015
	Other	(a)	160	94	144	990	152	538	2,079
	Telecommunication apparatus	6	386	233	195	301	119	213	1,453
71	Other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores	99	112	28	970	1,015	6,111	209	8,545
	Lifting, handling, loading or unloading	....	62	22	47	461	1,031	87	1,710
	Metal working	(a)	433	83	57	431	113	124	1,241
	Office	6	50	25	5	565	442	173	1,267
	Power generating machinery—								
	Internal combustion engines	147	76	9	152	5,801	792	117	7,095
	Other	(a)	444	....	....	1,453	59	30	1,986
	Taps, cocks, valves, etc.	2	27	2	2	454	243	40	770
	Textile and leather	(a)	63	44	49	137	43	118	455
	Tractors	....	44	577	553	1,817	3,823	29	6,842
69	Metal manufactures, n.e.i.—								
	Cutlery	74	35	10	116	92	1	13	341
	Tools	22	107	13	90	498	490	398	1,618
89	Miscellaneous manufactured articles, n.e.i.—								
	Books, newspapers, journals, etc.	(a)	21	40	16	1,366	186	71	1,701
	Toys	3	11	9	142	212	10	138	523
93	Outside packages, n.e.i.	81	183	88	495	758	409	695	2,709
64	Paper and paperboard—								
	Newsprint	956	....	....	....	....	....	1,586	2,542
	Other	77	37	1	105	185	49	320	773
33	Petroleum and petroleum products	....	11	....	10	105	218	(c)33,651	33,995
58	Plastic materials, regenerated cellulose and artificial resins	77	152	33	236	719	165	89	1,470
25	Pulp and waste paper	211	....	....	....	....	8	274	493
86	Scientific, medical, optical and photographic equipment	10	134	35	180	815	337	275	1,786
07	Tea	....	(a)	....	(a)	3	....	(d)1,571	1,575
65	Textile yarn, fabrics, made-up articles and related products—								
	Fabrics	4	114	41	1,419	643	92	1,588	3,903
	Floor coverings and the like	110	17	....	106	319	455	479	1,485
	Sacks and bags	....	(a)	....	239	(a)	(a)	2,572	2,810
24	Timber	....	(a)	....	....	(a)	133	2,378	2,512
73	Transport equipment—								
	Aircraft and parts, n.e.i.	10	(a)	2	....	157	211	1,046	1,426
	Railway vehicles	....	27	....	10	81	1,789	24	1,931
	Road motor vehicles and components	198	1,195	1,115	5,298	2,905	4,051	91	14,853
	Road vehicles, other than motor vehicles	2	456	9	128	42	58	16	711
62	Tyres and tubes	23	60	116	216	1,461	2,174	1,049	5,098
	All other commodities	1,775	3,341	1,575	6,874	10,970	15,430	10,343	50,308
	TOTAL	7,497	9,075	4,969	24,915	40,141	44,980	(e)75,403	206,980

(a) Less than $500. (b) Includes Christmas Island (Indian Ocean), $2·43 million; and Nauru, $4·48 million. (c) Includes Iran, $6·44 million; Kuwait, $10·5 million; Qatar, $5·10 million; Federation of South Arabia, $2·58 million; Trucial States, Muscat and Oman, $4·99 million. (d) Includes Ceylon, $1·09 million. (e) Includes an amount of $37·6 million representing the value of imports detailed in footnotes (b), (c) and (d).

EXPORTS

QUANTITY AND VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA SELECTED COMMODITIES: 1967–68

Division	Description	Unit	Interstate		Overseas		Total	
			Quantity	Value	Quantity	Value	Quantity	Value
00	Animals (live)—			$'000		$'000		$'000
	Cattle	number	16,463	1,148	1,302	81	17,765	1,229
	Sheep	number	14,528	72	248,988	2,119	263,516	2,191
51	Chemical elements and compounds	n.a.	n.a.	7,233	n.a.	17,323	n.a.	24,556
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	n.a.	n.a.	810	n.a.	28	n.a.	838
	Food—							
04	Cereals and cereal preparations—							
	Barley, unmilled	'000 bush	(a)	(a)	2,962	3,123	2,962	3,123
	Flour of wheat	sh. ton (b)	1,643	152	44,565	2,792	46,207	2,944
	Oats, unmilled	'000 bush	936	773	8,257	6,790	9,193	7,563
	Wheat, unmilled	'000 bush	(a)	1	87,200	121,764	87,200	121,764
	Other	cental (c)	14,345	124	155,786	715	170,131	839
03	Fish, fresh, chilled or frozen—							
	Rock lobster tails	'000 lb	(a)	1	8,639	17,988	8,640	17,989
	Other	'000 lb	560	395	3,060	2,991	3,621	3,387
05	Fruit and vegetables—							
	Fruit, fresh—							
	Apples	'000 bush	1	3	978	3,295	979	3,297
	Other	n.a.	n.a.	5	n.a.	766	n.a.	770
	Vegetables, fresh	n.a.	n.a.	736	n.a.	873	n.a.	1,609
01	Meat, fresh, chilled or frozen—							
	Beef and veal	'000 lb	152	58	36,932	12,937	37,084	12,995
	Lamb	'000 lb	464	115	1,599	385	2,063	500
	Mutton	'000 lb	244	31	26,691	4,214	26,934	4,245
	Pigmeat	'000 lb	951	377	254	96	1,205	474
	Other (d)	'000 lb	478	186	7,500	1,370	7,977	1,556
	Other food	n.a.	n.a.	2,299	n.a.	1,889	n.a.	4,188
85	Footwear, gaiters and similar articles	n.a.	n.a.	1,466	n.a.	(a)	n.a.	1,466
82	Furniture	n.a.	n.a.	1,387	n.a.	99	n.a.	1,486
99	Gold bullion	'000 fine oz	373	11,816	n.a.	n.a.	373	11,816
21	Hides, skins and fur skins, undressed—							
	Bovine	'000 lb	3,483	454	6,916	898	10,399	1,352
	Sheep and lamb	'000 lb	166	31	14,189	3,049	14,355	3,079
	Other	n.a.	n.a.	70	n.a.	197	n.a.	267
67	Iron and steel (e)	'000 tons	106	9,313	44	2,129	150	11,442
	Machinery—							
72	Electric power machinery and switchgear	n.a.	n.a.	960	n.a.	67	n.a.	1,027
71	Other than electric—							
	Agricultural—							
	Tractors	n.a.	n.a.	5,934	n.a.	20	n.a.	5,955
	Other	n.a.	n.a.	1,473	n.a.	27	n.a.	1,500
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	n.a.	n.a.	610	n.a.	446	n.a.	1,055
	Other	n.a.	n.a.	3,099	n.a.	2,252	n.a.	5,351
28	Metalliferous ores and metal scrap—							
	Ores, metalliferous—							
	Ilmenite	'000 tons	49	487	407	4,159	455	4,645
	Iron	'000 tons	2,729	7,875	11,604	96,631	14,333	104,506
	Manganese	'000 tons	(a)	23	161	3,385	161	3,408
	Tin	'000 cwt	8	787	24	1,544	32	2,330
	Other	'000 cwt	5	7	1,393	6,893	1,397	6,901
	Metal waste and scrap—							
	Ferrous	'000 cwt	5	16	254	330	259	346
	Non-ferrous	'000 cwt	87	1,922	12	130	99	2,052
64	Paper, paperboard and manufactures thereof	n.a.	n.a.	2,465	n.a.	13	n.a.	2,479
33	Petroleum and petroleum products	n.a.	n.a.	37,011	n.a.	7,539	n.a.	44,550
53	Pigments, paints, varnishes, etc.	n.a.	n.a.	325	n.a.	1,379	n.a.	1,704
62	Rubber manufactures, n.e.i.	n.a.	n.a.	707	n.a.	31	n.a.	737
68	Silver bullion	'000 fine oz	354	558	2,713	5,714	3,067	6,273
41	Tallow	'000 cwt	3	17	234	1,318	237	1,335
26	Textile fibres and their waste—							
	Cotton fibre	'000 lb	8,761	2,045	7	1	8,768	2,046
	Wool—							
	Degreased (washed, scoured, etc.)	'000 lb	1,009	521	24,308	12,028	25,317	12,549
	Greasy (including slipe)	'000 lb	10,950	5,704	238,666	108,165	249,616	113,868
	Other	'000 lb	149	131	2,293	1,988	2,442	2,119
24	Timber—							
	Sleepers, railway	'000 sup. ft	8,020	1,012	4,824	751	12,845	1,763
	Other	'000 sup. ft	15,933	2,054	7,012	1,130	23,005	3,184
73	Transport equipment	n.a.	n.a.	1,069	n.a.	2,497	n.a.	3,566
63	Veneers, plywood boards and reconstituted wood	n.a.	n.a.	1,404	n.a.	57	n.a.	1,461
	All other commodities	n.a.	n.a.	7,234	n.a.	8,852	n.a.	16,087
	TOTAL	n.a.	n.a.	124,505	n.a.	475,260	n.a.	599,765

n.a. denotes ' not applicable ' or ' not available '.

(a) Less than 500. (b) Short ton = 2,000 lb. (c) Cental = 100 lb. (d) Includes edible offals, poultry and rabbits. (e) Principally pig-iron, cast iron, basic shapes and sections.

The following table shows the value and proportion of the principal items exported overseas and interstate during 1967-68.

VALUE OF PRINCIPAL EXPORTS FROM WESTERN AUSTRALIA
SELECTED COMMODITIES: 1967–68

Division	Description	Value ($'000)			Proportion of total (per cent)		
		Interstate	Overseas	Total	Interstate	Overseas	Total
00	Animals (live)—						
	Cattle	1,148	81	1,229	0·92	0·02	0·20
	Sheep	72	2,119	2,191	0·06	0·45	0·37
51	Chemical elements and compounds	7,233	17,323	24,556	5·81	3·64	4·09
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	810	28	838	0·65	0·01	0·14
	Food—						
04	Cereals and cereal preparations—						
	Barley, unmilled	(a)	3,123	3,123	(b)	0·66	0·52
	Flour of wheat	152	2,792	2,944	0·12	0·59	0·49
	Oats, unmilled	773	6,790	7,563	0·62	1·43	1·26
	Wheat, unmilled	1	121,764	121,764	(b)	25·62	20·30
	Other	124	715	839	0·10	0·15	0·14
03	Fish, fresh, chilled or frozen—						
	Rock lobster tails	1	17,988	17,989	(b)	3·78	3·00
	Other	395	2,991	3,387	0·32	0·63	0·56
05	Fruit and vegetables—						
	Fruit, fresh—						
	Apples	3	3,295	3,297	(b)	0·69	0·55
	Other	5	766	770	(b)	0·16	0·13
	Vegetables, fresh	736	873	1,609	0·59	0·18	0·27
01	Meat, fresh, chilled or frozen—						
	Beef and veal	58	12,937	12,995	0·05	2·72	2·17
	Lamb	115	385	500	0·09	0·08	0·08
	Mutton	31	4,214	4,245	0·02	0·89	0·71
	Pigmeat	377	96	474	0·30	0·02	0·08
	Other (c)	186	1,370	1,556	0·15	0·29	0·26
	Other food	2,299	1,889	4,188	1·85	0·40	0·70
85	Footwear, gaiters and similar articles	1,466	(a)	1,466	1·18	(b)	0·24
82	Furniture	1,387	99	1,486	1·11	0·02	0·25
99	Gold bullion	11,816	....	11,816	9·49	....	1·97
21	Hides, skins and fur skins, undressed—						
	Bovine	454	898	1,352	0·36	0·19	0·23
	Sheep and lamb	31	3,049	3,079	0·02	0·64	0·51
	Other	70	197	267	0·06	0·04	0·04
67	Iron and steel (d)	9,313	2,129	11,442	7·48	0·45	1·91
	Machinery—						
72	Electric power machinery and switchgear	960	67	1,027	0·77	0·01	0·17
71	Other than electric—						
	Agricultural—						
	Tractors	5,934	20	5,955	4·77	(b)	0·99
	Other	1,473	27	1,500	1·18	0·01	0·25
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	610	446	1,055	0·49	0·09	0·18
	Other	3,099	2,252	5,351	2·49	0·47	0·89
28	Metalliferous ores and metal scrap—						
	Ores, metalliferous—						
	Ilmenite	487	4,159	4,645	0·39	0·88	0·77
	Iron	7,875	96,631	104,506	6·32	20·33	17·42
	Manganese	23	3,385	3,408	0·02	0·71	0·57
	Tin	787	1,544	2,330	0·63	0·32	0·39
	Other	7	6,893	6,901	0·01	1·45	1·15
	Metal waste and scrap—						
	Ferrous	16	330	346	0·01	0·07	0·06
	Non-ferrous	1,922	130	2,052	1·54	0·03	0·34
64	Paper, paperboard and manufactures thereof	2,465	13	2,479	1·98	(b)	0·41
33	Petroleum and petroleum products	37,011	7,539	44,550	29·73	1·59	7·43
53	Pigments, paints, varnishes, etc.	325	1,379	1,704	0·26	0·29	0·28
62	Rubber manufactures, n.e.i.	707	31	737	0·57	0·01	0·12
68	Silver bullion	558	5,714	6,273	0·45	1·20	1·05
41	Tallow	17	1,318	1,335	0·01	0·28	0·22
26	Textile fibres and their waste—						
	Cotton fibre	2,045	1	2,046	1·64	(b)	0·34
	Wool—						
	Degreased (washed, scoured, etc.)	521	12,028	12,549	0·42	2·53	2·09
	Greasy (including slipe)	5,704	108,165	113,868	4·58	22·76	18·99
	Other	131	1,988	2,119	0·11	0·42	0·35
24	Timber—						
	Sleepers, railway	1,012	751	1,763	0·81	0·16	0·29
	Other	2,054	1,130	3,184	1·65	0·24	0·53
73	Transport equipment	1,069	2,497	3,566	0·86	0·53	0·59
63	Veneers, plywood boards and reconstituted wood	1,404	57	1,461	1·13	0·01	0·24
	All other commodities	7,234	8,852	16,087	5·81	1·86	2·68
	TOTAL	124,505	475,260	599,765	100·00	100·00	100·00

(a) Less than $500. (b) Less than 0·005 per cent. (c) Includes edible offals, poultry and rabbits. (d) Principally pig-iron, cast iron, basic shapes and sections.

VALUE OF PRINCIPAL EXPORTS TO AUSTRALIAN STATES—SELECTED COMMODITIES ($'000)

Division	Description	1966–67	1967–68					
		Total	N.S.W.	Vic.	Qld	S.A.	Tas.	N.T.	Total
00	Animals (live)—								
	Cattle	312	....	....	129	(a)	....	1,019	1,148
	Sheep	21	....	....	....	72	(a)	....	72
51	Chemical elements and compounds	8,716	1,731	5,024	309	169	....	1	7,233
84	Clothing and clothing accessories and articles of knitted or crocheted fabric	1,014	228	186	42	269	17	68	810
29	Crude animal and vegetable materials, n.e.i.—								
	Animal casings (sausage), etc.	526	141	4	5	25	....	....	175
	Clover seed	483	100	167	....	279	....	....	547
	Food—								
02	Butter	186	....	....	2	....	....	214	216
06	Confectionery, excluding chocolate	505	105	138	59	35	15	4	358
03	Fish and fish preparations—								
	Fresh, chilled or frozen	375	45	275	....	76	....	(a)	396
	Canned or bottled, n.e.i., and fish preparations	843	283	197	4	88	....	(a)	572
01	Meat and meat preparations—								
	Fresh, chilled or frozen	659	14	349	....	30	....	374	768
	Other	187	2	6	....	11	....	203	221
05	Vegetables, fresh—								
	Potatoes (except sweet potatoes)	257	178	80	6	82	....	26	371
	Other	428	20	99	25	211	(a)	10	365
	Other food	1,247	138	923	13	482	3	430	1,989
85	Footwear, gaiters and similar articles	1,395	559	434	194	216	57	6	1,466
82	Furniture	1,171	282	372	288	307	15	124	1,387
99	Gold bullion	15,107	11,553	263	....	....	....	....	11,816
21	Hides, skins and fur skins, undressed—								
	Bovine	491	96	173	(a)	184	....	....	454
	Sheep and lamb	29	(a)	28	....	2	....	....	31
	Other	58	51	8	....	11	....	....	70
	Machinery—								
72	Electrical machinery and apparatus—								
	Electric power machinery (b)	404	85	780	7	84	....	3	960
	Other	138	34	46	23	38	1	5	147
71	Other than electric—								
	Agricultural—								
	Tractors	4,482	2,273	1,331	1,326	1,004	....	....	5,934
	Other	2,198	537	219	449	244	(a)	24	1,473
	Sorting, screening, crushing, mixing, for earth, stone, ores or other mineral substances	598	171	200	145	40	25	29	610
	Other	3,021	1,026	882	419	609	109	54	3,099
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Ilmenite	523	....	....	....	....	487	....	487
	Iron	6,063	7,875	....	....	....	....	....	7,875
	Manganese	428	23	....	....	....	....	....	23
	Tin	980	787	....	....	....	....	....	787
	Other	31	7	....	....	....	....	....	7
	Metal waste and scrap—								
	Ferrous	196	1	....	....	(a)	....	15	16
	Non-ferrous	1,710	1,348	334	....	239	....	....	1,922
69	Metal manufactures, n.e.i.—								
	Household equipment of base metals	458	77	153	70	30	10	5	344
	Other	1,183	275	169	57	498	1	144	1,145
	Metals—								
67	Iron and steel (c)	12,499	976	4,363	90	3,607	18	259	9,313
68	Silver bullion	1,888	558	....	....	....	....	....	558
33	Petroleum and petroleum products	24,302	12,028	15,692	(a)	6,405	1,489	1,397	37,011
62	Rubber manufactures, n.e.i.	1,050	252	241	39	165	6	4	707
26	Textile fibres and their waste—								
	Cotton fibre	1,572	2,044	(a)	....	....	....	....	2,045
	Wool—								
	Degreased (washed, seoured, etc.)	1,056	10	192	....	319	....	....	521
	Greasy (including slipe)	4,993	171	2,899	....	2,513	120	....	5,704
	Other	326	....	89	....	42	....	....	131
24	Timber—								
	Sleepers, railway	871	....	....	....	999	....	13	1,012
	Other	2,475	164	339	3	1,364	....	185	2,054
73	Transport equipment—								
	Road motor vehicles (d)	403	198	150	117	97	2	5	570
	Other	1,099	230	88	101	40	10	29	499
63	Wood and cork manufactures (e)—								
	Veneers, plywood boards, etc.	1,133	351	709	....	290	24	29	1,404
	Cork manufactures	482	219	174	122	10	....	....	525
	All other commodities	5,460	1,202	2,628	317	2,260	115	636	7,158
	TOTAL	116,030	(f)48,447	40,405	4,362	23,450	2,526	5,314	124,505

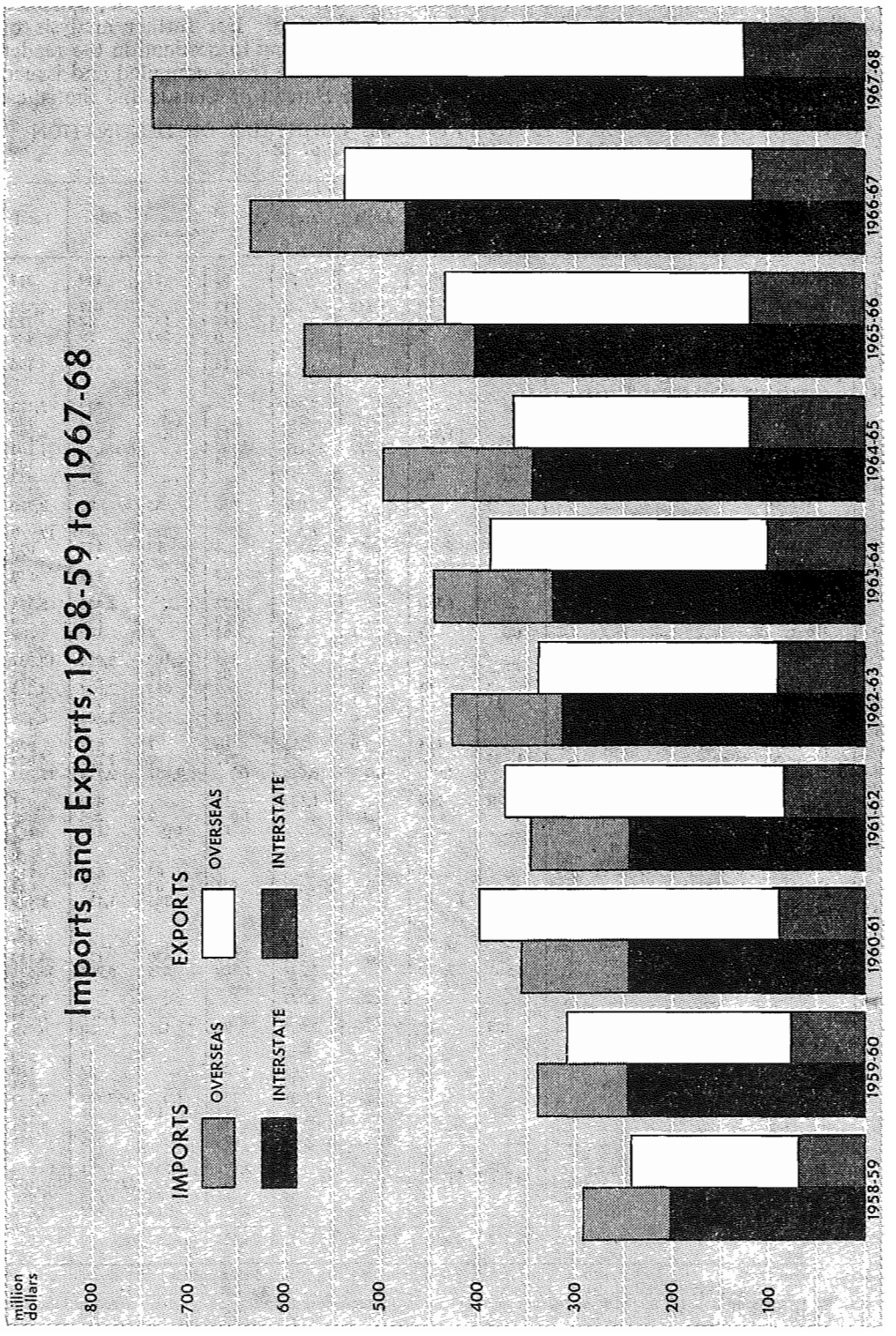
(a) Less than $500. (b) Including switchgear. (c) Principally pig-iron, cast iron, basic shapes and sections.
(d) Including components. (e) Excluding furniture. (f) Includes the value of exports to the Australian Capital Territory.

The following table shows the value of overseas exports during 1967–68, classified according to commodity and main countries of destination. For further analysis of Western Australia's exports of principal commodities according to destination the reader is referred to the annual mimeographed publication *External Trade* compiled and issued free of charge by the Western Australian Office of the Bureau of Census and Statistics.

VALUE OF OVERSEAS EXPORTS TO PRINCIPAL COUNTRIES OF DESTINATION
SELECTED COMMODITIES, 1967–68
($'000)

Division	Description	France	Germany, Federal Republic of	India	Japan	United Kingdom	United States of America	Other	Total
29	Animal casings (sausage) and the like....	....	(a)	....	51	91	51	117	311
41	Animal oils and fats—								
	Tallow	....	....	348	....	13	....	957	1,318
	Other	....	....	....	....	496	197	18	712
53	Dyeing and tanning materials	....	2	....	....	6	557	59	624
55	Essential oils, perfume and flavour materials	66	8	1	....	15	24	72	186
	Food—								
04	Cereals and cereal preparations—								
	Barley, unmilled	....	....	....	2,391	....	....	732	3,123
	Cereal preparations	....	....	....	283	....	(a)	422	705
	Oats, unmilled	....	1,946	40	436	13	....	4,354	6,790
	Wheat, unmilled	....	....	22,773	20,198	4,367	....	(b)74,426	121,764
02	Cheese and curd	....	....	....	....	170	....	12	181
08	Feeding-stuff for animals	....	62	....	134	....	....	237	433
03	Fish, fresh, chilled or frozen—								
	Prawns	3	5	....	2,043	150	83	86	2,370
	Rock lobsters—								
	Tails	3	....	....	(a)	....	17,916	69	17,989
	Whole	429	(a)	....	....	4	19	157	608
05	Fruit—								
	Currants	....	....	....	....	69	....	179	248
	Fresh—								
	Apples	....	1,170	....	....	682	....	1,442	3,295
	Other	....	....	....	....	6	....	760	766
06	Honey	(a)	29	1	29	62	2	186	309
01	Meat, fresh, chilled or frozen—								
	Beef and veal....	....	....	7	191	545	10,108	2,086	12,937
	Lamb	....	....	2	42	85	11	245	385
	Mutton	2	13	11	1,435	60	615	2,077	4,214
	Other	25	51	1	101	520	45	724	1,467
	Other food	....	1	8	7	268	234	3,888	4,406
21	Hides, skins and fur skins, undressed—								
	Bovine	....	113	6	232	16	7	525	898
	Sheep and lamb	1,483	88	....	2	273	2	1,200	3,049
51	Inorganic elements and compounds	....	(a)	(a)	6,628	(a)	7,857	2,718	17,203
67	Iron and steel—								
	Pig, ingot and other primary forms....	8	269	....	1,130	15	....	499	1,921
	Other	....	....	....	....	(a)	2	206	208
61	Leather	....	....	....	....	11	(a)	146	157
71	Machinery, other than electric—								
	Excavating, levelling, tamping and boring, for earth, minerals or ores	....	....	....	....	2	80	633	715
	Power generating	....	....	(a)	....	123	60	439	622
	Other	....	....	4	13	52	205	1,134	1,409
28	Metalliferous ores and metal scrap—								
	Ores, metalliferous—								
	Copper....	....	....	....	737	....	....	....	737
	Ilmenite	988	....	....	554	2,079	420	118	4,159
	Iron	1,901	2,620	....	83,362	1,569	275	6,904	96,631
	Lead and zinc	....	....	....	58	....	....	....	58
	Manganese	....	....	....	3,385	....	....	....	3,385
	Tin	....	....	....	....	....	36	1,508	1,544
	Other	126	78	....	2,927	93	425	2,450	6,099
	Metal waste and scrap—								
	Ferrous	....	....	....	276	....	....	54	330
	Non-ferrous	....	....	....	48	24	....	57	130
22	Oil-seeds, oil nuts and oil kernels	....	....	....	573	....	....	....	573
33	Petroleum and petroleum products	....	....	....	31	309	(a)	(c)7,198	7,539
73	Road motor vehicles and components....	....	....	....	(a)	113	18	301	433
68	Silver bullion	....	....	....	....	5,714	....	....	5,714
24	Sleepers, railway	....	....	....	....	422	....	329	751
26	Wool—								
	Degreased (washed, seoured, etc.)	338	1,842	214	51	2,451	3,322	3,811	12,028
	Greasy (including slipe)	8,788	11,728	1,992	34,245	12,681	5,936	(d)32,795	108,165
	Other	....	21	....	36	11	76	1,845	1,988
	All other commodities	22	116	92	383	1,039	919	11,107	13,677
	TOTAL	14,183	20,162	25,500	162,012	34,621	49,504	169,279 (e)	475,260

(a) Less than $500. (b) Includes China (mainland), $61·6 million; Hong Kong, $3·62 million; and Singapore, $4·29 million. (c) Includes New Zealand, $3·38 million. (d) Includes Italy, $5·26 million; Poland, $4·42 million; and U.S.S.R., $9·19 million. (e) Includes an amount of $91·7 million representing the value of exports detailed in footnotes (b), (c) and (d).


Imports and Exports, 1958-59 to 1967-68
million dollars
800
700
600
500
400
300
200
100
IMPORTS
OVERSEAS
INTERSTATE
EXPORTS
OVERSEAS
INTERSTATE
1958-59
1959-60
1960-61
1961-62
1962-63
1963-64
1964-65
1965-66
1966-67
1967-68

AVERAGE EXPORT VALUES

The following table shows the annual average export values, during the five years ended 30 June 1968, of a number of Western Australia's principal export commodities. The figures are based on *total* exports (interstate and overseas) and represent the value *f.o.b.* at the point of consignment.

ANNUAL AVERAGE EXPORT VALUES OF SPECIFIED COMMODITIES
($)

Description	Unit	1963–64	1964–65	1965–66	1966–67	1967–68
Apples, fresh	bushel	3.65	3.49	3.57	3.30	3.37
Cereals and cereal preparations—						
Barley	"	1.04	1.05	1.17	1.12	1.05
Oats	"	0.81	0.82	0.87	0.82	0.82
Wheat	"	1.42	1.41	1.39	1.49	1.40
Wheaten flour	cental (*a*)	3.18	3.21	3.12	3.27	3.19
Meat, fresh, chilled or frozen—						
Beef	lb	0.25	0.28	0.30	0.32	0.35
Lamb	"	0.18	0.20	0.22	0.21	0.24
Mutton	"	0.15	0.17	0.18	0.17	0.16
Pork	"	0.38	0.41	0.41	0.38	0.39
Minerals, crude—Asbestos	cental (*a*)	9.93	9.00	9.57	9.32	[(*b*)
Ores, metalliferous—						
Ilmenite	ton	9.93	9.82	9.89	10.17	10.20
Iron	"	2.02	1.98	(*c*) 2.66	6.06	7.29
Manganese	"	25.62	22.96	23.13	21.95	21.15
Potatoes	cwt	1.81	3.30	3.31	2.01	2.41
Rock lobster tails	lb	1.22	1.80	1.96	1.73	2.08
Skins and hides—						
Bovine	"	0.11	0.13	0.17	0.18	0.13
Sheep and lamb, with wool	"	0.39	0.33	0.32	0.30	0.21
Timber—						
Railway sleepers	100 sup. ft	10.11	10.30	12.62	12.53	13.73
Other (*d*)	"	11.16	11.40	12.67	12.85	13.80
Wool—						
Greasy (including slipe)	lb	0.61	0.55	0.53	0.53	0.46
Degreased (washed, scoured, etc.)	"	0.75	0.68	0.61	0.60	0.50

(*a*) Cental = 100 lb. (*b*) Exports of asbestos during 1967–68 were negligible. (*c*) Prior to 1965–66, when the first large-scale overseas shipments were made, exports of iron ore consisted almost entirely of consignments to New South Wales. (*d*) Excluding plywood and veneers.

SHIPS' STORES

The following table shows the quantity and value of ships' stores loaded on board vessels at Western Australian ports during the years 1965–66 to 1967–68. The value of ships' stores is excluded from all tables appearing elsewhere in this Part.

EXPORTS IN THE FORM OF SHIPS' STORES (*a*)

Description	Unit	1965–66		1966–67		1967–68	
		Quantity	Value	Quantity	Value	Quantity	Value
			$'000		$'000		$'000
Beverages, alcoholic	'000 gallons	212	231	193	231	193	245
Foodstuffs—							
Fresh, chilled or frozen—							
Eggs in shell	'000 dozen	270	170	246	155	201	128
Fish	'000 lb	301	191	437	278	333	212
Fruit	....	....	115	....	156	....	118
Meat	'000 lb	2,442	782	3,418	894	2,123	835
Vegetables	....	....	266	....	353	....	295
All other foodstuffs	....	....	*453	....	424	....	369
Fuel for ships and aircraft—							
Coal	ton	2,763	53	1,105	23	1,515	30
Other (bunker oil, etc.)	'000 gallons	87,562	6,700	96,784	7,380	136,506	11,079
Lubricants	....	....	272	....	195	....	282
All other ships' stores	....	....	*824	....	849	....	1,231
Total (*a*)	....	....	10,058	....	10,936	....	14,824

(*a*) Includes interstate ships' stores valued at $1,052,259 in 1965–66, $931,492 in 1966–67 and $1,079,145 in 1967–68. Where the value of overseas ships' stores recorded in any one entry is less than $100 (1965–66 and 1966–67) or $150 (1967–68), the stores concerned are not allocated according to commodity, but are included in the item *All other ships' stores*. * Revised.

OVERSEAS TRADE OF PORTS

The following table shows the value of overseas imports and exports through Western Australian ports during each year from 1965–66 to 1967–68.

VALUE OF OVERSEAS TRADE OF WESTERN AUSTRALIAN PORTS
($'000)

Port	Imports			Exports		
	1965–66	1966–67	1967–68	1965–66	1966–67	1967–68
Port of Fremantle (*a*)	165,717	143,156	168,259	241,779	287,202	285,336
Other ports—						
Albany	1,874	2,238	3,130	26,359	30,048	30,337
Broome	6	216	(*b*) 7,308	1,809	2,166	(*b*) 4,579
Bunbury (*c*)	2,413	2,838	2,977	12,805	21,503	16,811
Dampier (*d*)	1,633	4,965	12,351	474	21,972	56,560
Derby (*e*)	6	68	166	469	733	1,285
Esperance	371	889	1,093	1,652	5,634	8,509
Exmouth (*f*)	....	....	619	7	....	169
Geraldton	1,751	3,193	3,488	24,514	27,437	33,447
Port Hedland (*g*)	1,819	1,587	7,589	2,084	21,806	38,226
Wyndham	99	240	(*h*)	2,451	2,824	(*h*)
Total	9,973	16,235	38,720	72,623	134,124	189,924
Total, all ports	175,690	159,390	206,980	314,404	421,325	475,260

(*a*) For the purpose of this table, the value of goods received from or consigned to overseas countries as air freight or by parcel post is included in the figures shown for the Port of Fremantle. (*b*) Includes Wyndham. (*c*) Includes Busselton. (*d*) Ineludes Point Samson. (*e*) Includes Yampi. (*f*) Includes Carnarvon and Onslow. (*g*) Includes Barrow Island. (*h*) Included with Broome.

The following table shows the total value of Australia's overseas imports and exports, together with the proportion handled at Western Australian ports, during each of the years 1963–64 to 1967–68.

EXTERNAL TRADE OF AUSTRALIA—TOTAL VALUE AND PROPORTION HANDLED AT WESTERN AUSTRALIAN PORTS

Year	Value of Australian trade ($'000)			Proportion handled at Western Australian ports (per cent)		
	Imports	Exports	Total	Imports	Exports	Total
1963–64	2,372,658	2,782,460	5,155,118	5·13	10·30	7·92
1964–65	2,904,703	2,651,449	5,556,152	5·29	9·17	7·14
1965–66	2,939,492	2,720,953	5,660,445	5·98	11·55	8·66
1966–67	*3,045,341	*3,023,925	*6,069,266	5·23	*13·93	*9·57
1967–68	3,264,473	3,044,675	6,309,148	6·34	15·61	10·81

* Revised.

CUSTOMS AND EXCISE

The Customs Tariff

The first Commonwealth Customs Tariff was introduced on 8 October 1901, from which date uniform duties came into effect throughout Australia. The Australian Customs Tariff has been developed in conformity with the policy of protecting economic and efficient Australian industries and of granting preferential treatment to imports from certain countries. Duties are imposed on some goods, generally of a luxury nature, for revenue purposes. Customs collections are a major source of revenue, but in its protective character the tariff has an important influence on the Australian economy.

The particulars appearing in the tables in this section have been extracted from the bulletin *Overseas Trade* published annually by the Commonwealth Statistician, Canberra. The bulletin contains details showing, for each State and Territory, a dissection of customs revenue according to Customs Tariff Division, and excise revenue according to Excise Tariff Item and rate of duty.

CUSTOMS AND EXCISE DUTIES—NET COLLECTIONS IN WESTERN AUSTRALIA
($'000)

Tariff	1963–64	1964–65	1965–66	1966–67	1967–68
Customs duty (*a*)	9,782	10,074	13,359	11,839	16,604
Excise duty—					
Petroleum products	9,763	13,185	17,848	20,222	22,090
Spirits, potable and non-potable	567	615	830	1,017	1,084
Tobacco, cigars and cigarettes	10,060	11,350	12,909	13,069	13,885
Other (*b*)	17,357	17,933	21,491	23,365	25,290
Total, excise (*b*)	37,746	43,083	53,077	57,673	62,349
TOTAL NET REVENUE (*b*) (*c*)	47,528	53,157	66,437	69,513	78,953

(*a*) Amounts shown have been adjusted by offsetting remissions of customs duty under special circumstanees. (*b*) Includes excise on beer, details of which are not available for publication. (*c*) See note (*a*).

The following table shows the rates of excise duty applying to certain commodities during the period 1 July 1966 to 30 June 1968, the quantities of goods excised in Western Australia at those rates, and the gross amounts of revenue collected. For a more detailed analysis, including particulars for each State and Territory, the reader is referred to the annual bulletin *Overseas Trade* to which reference is made earlier in this section.

EXCISE DUTY—GROSS COLLECTIONS IN WESTERN AUSTRALIA

Commodity	Unit	Rate of duty	1966–67		1967–68	
			Quantity	Gross collections	Quantity	Gross collections
		$		$'000		$'000
Beer	gal	1·1375	(*a*)	(*a*)	(*a*)	(*a*)
Spirits (potable)—						
Brandy	pf gal	8·00	56,746	454	65,565	525
Gin	,,	11·30	13,416	152	11,152	126
Whisky	,,	11·10	14,432	160	14,969	166
Rum	,,	11·30	10,747	121	10,418	118
Liqueurs	,,	11·20	2,867	32	3,278	36
Vodka	,,	11·20	4,879	55	6,671	75
Flavoured spirituous liquors	,,	11·20	466	5	418	5
Other	,,	12·20	77	1	....	....
Spirits (non-potable) for—						
Fortifying wine	,,	0·40	53,760	21	61,109	24
Industrial and scientific purposes (*b*)	,,	2·50	4,754	12	4,233	10
Making vinegar (*b*)	,,	0·20	12,432	2	10,430	2
Manufacture of—						
Essences (*b*)	,,	1·00 to 1·20	3,173	3	2,754	3
Scents and toilet preparations (*b*)	,,	1·40 to 1·60	45	(*c*)	104	(*c*)
Tobacco—Manufactured	lb	0·69	14,529	10	14,402	10
	,,	2·173	168	(*c*)	120	(*c*)
	,,	2·24	606,655	1,359	569,119	1,275
Cigarettes—Machine-made	,,	4·20	2,785,661	11,700	3,000,007	12,600
Petroleum products—						
Aviation gasoline	gal	0·0957	15,777	2	....	....
Gasoline, n.e.i.	,,	0·123	146,017,542	17,960	157,155,254	19,342
Aviation turbine kerosene	,,	0·079	8,726,932	689	9,741,840	770
Diesel fuel	,,	0·125	12,583,678	1,573	15,943,210	1,993
Cigarette papers and tubes	60 papers or tubes	0·0145	5,374,576	78	5,148,400	75
Coal	ton	0·0333	1,075,610	36	1,060,200	35
Canned fruit	dozen containers	0·10 to 1·05	52,875	12	45,210	14
Other	n.a.	n.a.	n.a.	(*d*) 23,738	n.a.	(*d*) 25,699
Total gross collections	n.a.	n.a.	n.a.	(*d*) 58,176	n.a.	(*d*) 62,903

n.a. denotes 'not applicable'.

(*a*) Not available for publication. (*b*) Free of duty from 17 May 1968. (*c*) Less than $500. (*d*) Includes excise duty paid on beer; see note (*a*).

Chapter IX—continued

Part 2—Internal Trade

CENSUS OF RETAIL ESTABLISHMENTS

Details of the structure and pattern of retail trade throughout Australia are obtained in periodic Censuses of Retail Establishments. To date, censuses have been taken covering the years 1947-48, 1948-49, 1952-53, 1956-57 and 1961-62 and a further census was taken in respect of the year 1968-69 as part of a programme of Integrated Economic Censuses covering the mining, manufacturing, wholesaling and retailing fields.

Each census prior to 1968-69 has covered the retail trading activities of establishments which normally sell goods to the general public from fixed premises such as shops, rooms, kiosks and yards. Retail activities of wholesalers and manufacturers were included, provided these establishments sold regularly by retail to the general public. Sales by itinerant vendors (*e.g.* hawkers, street sellers, etc.) and sales from casual stalls or booths were excluded. Organisations such as clubs and societies making sales to their own members were excluded from the main census collection, but a supplementary collection was made covering sales by *licensed* clubs. Supplementary collections were also made in respect of motion picture theatres, and laundries and dry cleaners. In general, establishments with total retail sales of less than $1,000 in the census year were excluded.

The particulars of retail sales obtained from the censuses relate principally to sales to the final consumer of new and second-hand goods generally used for household and personal purposes. For this reason, sales of building materials, farm and industrial machinery and equipment, earthmoving equipment, etc. have been excluded from the censuses. For the same reason, and also because of difficulties in obtaining reliable and complete reporting, sales of builders' hardware and supplies, business machines and equipment, grain, feed, fertiliser and agricultural supplies, and tractors were excluded from the 1961-62 Census. Retail sales of motor vehicles, parts, etc. have been included, whether for industrial, commercial, farm, or private use.

For complete details of the tabulations relating to Western Australia from the 1961-62 Census, the reader is referred to the publication *Census of Retail Establishments and Other Services: Year ended 30 June 1962: Bulletin No. 6—Western Australia* published by the Commonwealth Statistician, Canberra. This bulletin is one of a series dealing separately with each of the Australian States and Territories.

Considerable changes in scope and coverage were made to the census taken in 1968-69, arising from the integration of economic censuses. Information relating to these changes in the scope and coverage of the census and details of retail trading activities in 1968-69 will be published by the Commonwealth Statistician in a special bulletin to be issued later in 1970.

The Census of Retail Establishments provides a framework for the quarterly sample surveys designed to measure variations in the value of retail sales throughout the intercensal period—see following section.

SURVEY OF RETAIL ESTABLISHMENTS

During the period between censuses, estimates of the value of retail sales are derived from returns received from a representative sample of retailers throughout Australia. These establishments account for approximately 45 per cent of the total retail sales in Australia. From these sample returns, totals for all retail establishments in Australia are estimated by methods appropriate to a stratified sample, using data from the most recent census as a benchmark.

Annual revisions to the sample take account of the changing pattern of retail trade and ensure that new businesses entering the field are represented in the survey.

Quarterly estimates for each State and Territory and Australia as a whole in broad commodity groups are published by the Commonwealth Statistician in the bulletin *Retail Sales of Goods*. Preliminary monthly estimates of total retail sales in Australia (excluding motor vehicles, etc.), based on a sub-sample of the establishments used to provide the quarterly estimates, appear in *Retail Sales of Goods (Provisional)*.

In the following table, the estimated value of retail sales of goods in Western Australia is given by commodity groups for each of the years 1964-65 to 1968-69. The estimates shown are compiled on a basis comparable with the 1961-62 Census of Retail Establishments.

RETAIL SALES CLASSIFIED ACCORDING TO COMMODITY GROUPS (*a*)
($ million)

Commodity group	1964–65	1965–66	1966–67	1967–68	1968–69
Groceries	81·1	89·3	95·5	104·3	113·8
Butchers' meat	34·0	36·8	40·5	43·8	48·7
Other food (*b*)	59·8	63·8	68·5	75·6	83·1
Total food and groceries	174·9	189·9	204·5	223·7	245·6
Beer, wine and spirits (*c*)	47·6	55·1	62·2	68·4	81·2
Clothing, drapery, soft furnishings	67·9	73·8	81·0	88·8	98·5
Footwear	11·9	12·8	13·5	15·1	16·4
Hardware, china and glassware (*d*)	11·6	12·7	13·4	14·8	16·7
Electrical goods (*e*)	25·1	28·5	31·6	36·3	40·9
Furniture, mattresses, floor coverings	21·4	22·8	24·4	28·0	32·8
Chemists' goods	21·6	24·3	26·4	29·0	33·8
Newspapers, books, stationery	12·6	13·9	14·8	16·2	18·5
Other goods (*f*)	42·4	47·1	52·2	56·0	63·0
Total (excluding motor vehicles, etc.)	437·0	480·9	524·0	576·3	647·4
New and used motor vehicles, parts, petrol, etc. (*g*)	169·0	180·9	218·2	246·6	289·1
GRAND TOTAL	606·0	661·8	742·2	822·9	936·5

(*a*) Figures for 1964–65 to 1967–68 have been revised since previous issue. (*b*) Includes fresh fruit and vegetables, confectionery, soft drinks, ice cream, cakes, pastry, cooked provisions, fish, etc. but excludes most delivered milk and some delivered bread. (*c*) Excludes sales made by licensed clubs. (*d*) Excludes basic building materials, builders' hardware and supplies such as tools of trade, paint, etc. (*e*) Includes radios, television and accessories, musical instruments, domestic refrigerators. (*f*) Includes tobacco, cigarettes, etc.; jewellery, sporting goods, etc. but excludes grain and produce, and business machines. (*g*) Excludes tractors, farm machinery and implements, earthmoving equipment, etc.

For purposes of comparison the following tables show, for each of the Australian States and Territories, the total value of retail sales excluding motor vehicles, etc. and of retail sales of new and used motor vehicles, parts, petrol, etc. in each of the years 1964-65 to 1968-69.

RETAIL SALES (EXCLUDING MOTOR VEHICLES, ETC.): STATES AND TERRITORIES
($ million)

State or Territory	1964–65	1965–66	1966–67	1967–68	1968–69
New South Wales	2,403·7	2,519·5	2,665·6	2,838·5	2,979·0
Victoria	1,821·0	1,916·4	2,036·8	2,161·8	2,283·3
Queensland	855·1	897·9	960·6	1,015·7	1,048·1
South Australia	574·5	602·0	627·0	663·0	699·1
Western Australia	437·0	480·9	524·0	576·3	647·4
Tasmania	191·0	198·3	215·0	227·4	238·3
Australian Capital Territory	51·7	56·9	65·7	74·6	(*a*)
Northern Territory	21·7	24·7	28·8	34·4	(*a*)
AUSTRALIA	6,355·7	6,696·6	7,123·5	7,591·7	(*b*) 7,895·2

(*a*) Not available. (*b*) Excludes Australian Capital Territory and Northern Territory.

RETAIL SALES OF MOTOR VEHICLES, PARTS, PETROL, ETC.: STATES AND TERRITORIES
($ million)

State or Territory	1964–65	1965–66	1966–67	1967–68	1968–69
New South Wales	891·5	885·6	960·3	1,064·6	1,155·3
Victoria	645·7	654·0	674·1	746·1	779·6
Queensland	353·0	345·9	352·2	393·7	420·3
South Australia	238·0	220·4	214·0	239·3	256·1
Western Australia	169·0	180·9	218·2	246·6	289·1
Tasmania	75·7	77·4	79·9	85·8	87·2
Australian Capital Territory	18·5	19·6	23·8	29·7	(*a*)
Northern Territory	9·0	9·6	11·2	16·5	(*a*)
AUSTRALIA	2,400·4	2,393·4	2,533·7	2,822·3	(*b*) 2,987·6

(*a*) Not available. (*b*) Excludes Australian Capital Territory and Northern Territory.

DELIVERIES OF NEW AGRICULTURAL MACHINERY

The statistics in this section, which cover certain types of imported and Australian-made new agricultural machinery, have been derived from quarterly returns collected from principals marketing the equipment. Deliveries represent implements and machines sent to agents or dealers by the principals or by the State distributors, plus direct sales to final users by the principals or distributors. Additional information on receipts, deliveries and stocks is available in the quarterly bulletin *New Agricultural Machinery Statistics* issued by the Commonwealth Statistician, Canberra.

DELIVERIES OF NEW AGRICULTURAL MACHINERY (*a*)
(Number)

Type of implement or machine	1964–65	1965–66	1966–67	1967–68	1968–69
New tillage implements—					
Disc ploughs—					
Tractor-mounting type	68	83	46	39	41
Trailing type	1,169	1,182	1,137	1,096	976
Agricultural rippers (sub-soilers)	n.a.	n.a.	n.a.	*126	83
Tine cultivators and scarifiers	642	601	483	*639	(*b*)
Tine harrows (number of leaves or sections)	7,044	6,373	8,219	12,099	8,943
Disc harrows	n.a.	n.a.	n.a.	155	185
Rotary cultivators	360	446	335	327	351
New seeding and fertilising machinery—					
Drills and cultivating drills	875	886	932	1,184	975
Fertiliser spreaders, other than direct drop	197	300	518	660	499
New harvesting, haymaking and silage-making machinery—					
Pick-up balers	156	190	193	209	131
Forage harvesters	18	31	25	13	(*b*)
Headers (combine harvesters)—					
Self-propelled	147	274	216	376	192
Drawn	608	810	735	411	335
Agricultural mowers (4 ft cut and over) (*c*)—					
Reciprocating knife	523	399	243	192	(*b*)
Rotary mowers, slashers, and toppers	161	360	449	449	301
Pick-up bale loaders for baled hay	n.a.	n.a.	n.a.	90	134
Bale elevators and stackers	n.a.	n.a.	n.a.	102	104
Grain augers	n.a.	n.a.	n.a.	691	(*b*)
Other new agricultural machinery—					
Post-hole diggers (auger type)	250	290	260	*294	(*b*)
Hammer mills (farm type)	57	82	126	(*b*)	135

n.a. denotes ' not available '.

(*a*) See letterpress immediately preceding table. (*b*) Not available for publication. (*c*) Excludes flail mowers and toppers. * Revised.

SALES OF NEW TRACTORS

The following table has been derived from the quarterly collection of tractor statistics from businesses which distribute the various makes of new tractors throughout Australia. The figures for sales represent the number of new tractors delivered or in transit to end-users or to manufacturers of tractor attachments. For additional information, the reader is referred to the bulletin *New Tractors: Receipts, Sales and Stocks* issued quarterly by the Commonwealth Statistician, Canberra.

SALES OF NEW TRACTORS (a)
(Number)

Horsepower and shipping weight	Agricultural (b)			Non-agricultural (b)		
	1966–67	1967–68	1968–69	1966–67	1967–68	1968–69
WHEELED TRACTORS						
Maximum power take-off horsepower—						
Up to and including 15 hp	n.a.	(c)	(c)	n.a.	(c)	(c)
Over 15 hp and up to 25 hp	....	....	....	....	....	....
„ 25 hp „ „ 35 hp	22	(c)	(c)	4	(c)	(c)
„ 35 hp „ „ 45 hp	296	262	244	44	77	95
„ 45 hp „ „ 60 hp	776	344	(c)	105	210	(c)
„ 60 hp „ „ 80 hp	507	968	864	5	35	56
„ 80 hp „ „ 100 hp	287	409	(c)	10	(c)	(c)
„ 100 hp	36	(c)	(c)	5	(c)	(c)
Total	1,924	2,072	1,752	173	438	524
CRAWLER TRACTORS						
Shipping weight—						
Over 3,000 lb and up to 6,000 lb	1	....	....	....	(c)	(c)
„ 6,000 lb „ „ 10,000 lb	6	(c)	(c)	2	(c)	(c)
„ 10,000 lb „ „ 15,000 lb	40	(c)	(c)	16	(c)	(c)
„ 15,000 lb „ „ 25,000 lb	5	(c)	(c)	50	(c)	(c)
„ 25,000 lb „ „ 40,000 lb	1	4	(c)	35	65	(c)
„ 40,000 lb	1	....	....	24	(c)	(c)
Total	54	40	(c)	127	201	(c)

n.a. denotes ' not available '.

(a) See letterpress immediately preceding table. (b) From 1967-68 includes wheeled tractors which are operated from in front of the engine when the vehicle is in forward motion, and articulated tractors. (c) Not available for publication.

WHOLESALE SALES AND STOCKS OF WINE AND BRANDY

WINE AND BRANDY—WHOLESALE SALES AND STOCKS
(See letterpress on page 436)

Type	Wholesale sales (a)			Stocks held by wholesalers and winemakers at 30 June		
	1966–67	1967–68	1968–69	1967	1968	1969
	gallons	gallons	gallons	gallons	gallons	gallons
Wine—						
Sherry—						
Flor	665,091	653,688	38,868	328,609	356,852	19,766
Other dry			38,600			45,851
Sweet (b)			663,503			275,322
Dessert wines—						
Port (c)	384,438	407,974	174,848	387,565	357,135	134,109
Muscats (d)			204,799			169,526
Other (e)			63,200			31,998
Table wines (still, unfortified)—						
Dry white (f)	94,846	126,849	148,820	140,684	131,144	171,851
Dry red (g)	239,385	339,034	388,721	422,256	381,332	446,313
Sweet (h)	41,361	45,518	47,710	23,654	25,803	25,382
Rose	2,804	8,074	18,253	2,647	13,060	13,206
Sparkling wines (all types) (i)—						
White	120,675	143,686	165,225	19,496	26,459	39,626
Red	8,753	13,995		2,591	3,455	
Wine cocktails, etc. (j)	28,337	*26,087	24,134	3,350	5,246	5,515
Vermouth	17,950	25,396	30,028	5,357	7,591	7,439
Total, Wine	1,603,640	1,790,301	2,006,709	1,336,209	1,308,077	1,385,904
	proof gallons	proof gallons	proof gallons	proof gallons	proof gallons	proof gallons
Brandy	74,109	88,374	92,903	23,707	20,144	21,537

(a) Comprises sales (both local and interstate) made by wholesalers and winemakers from stocks held in Western Australia. Excludes sales to wholesalers and winemakers for resale by them, overseas exports, and sales for ships' stores. (b) Includes medium dry and medium sweet. (c) Other than white. (d) Includes Frontignac. (e) Includes Madeira, Tokay, Marsala and White Port. (f) Includes Riesling, Hock, Moselle, Chablis and White Burgundy. (g) Includes Claret and Burgundy. (h) Includes Sauternes and Graves. (i) Includes carbonated and pearl-type wines, etc. (j) Includes aperitif and tonic wines. * Revised.

Each year details are obtained from winemakers, wholesale merchants, and importers, of the the quantities of the various types of wine and brandy held in stock at 30 June or sold to retailers and consumers during the previous twelve months. The survey thus covers all sales of wine and brandy by wholesalers and manufacturers in the State except sales made to other wholesalers or manufacturers for resale by them, or to overseas purchasers. Although the figures for sales in the previous table are free of duplication, they should not be regarded as showing actual consumption in Western Australia as they include sales to retailers and consumers in other States and, conversely, exclude purchases from other States by Western Australian retailers and consumers.

In 1968-69 a new classification of type of wine was adopted. For this reason comparison of figures between 1968-69 and the two earlier years shown in the table can only be made in respect of total figures for sales and stocks of Sherry, Dessert Wines and Sparkling Wines.

Chapter IX—continued

Part 3—Transport

Western Australia's main transport systems are based generally on Perth, the capital, and the principal port, at Fremantle. Subsidiary systems are centred on a number of outports north and south of Fremantle and on some inland towns.

The railway system extends from Fremantle, Perth and Midland for hundreds of miles into the mining, agricultural, pastoral and forest areas in the southern half of the State. There is also a well-developed road system in this area, and the coastal towns in the north-west and the north are connected by road with the south and with the pastoral and mining areas of the hinterland. International flights operate through the airport at Perth, which is also the centre of a comprehensive network of services to towns in Western Australia and to the capital cities of other States.

In recent years important mineral developments in the north-west have led to the provision of deep-water port facilities and the construction of railways and roads connecting them with the extensive iron-ore deposits now being exploited.

The following table shows distances by road, rail, sea and air between Perth and selected towns and localities in Western Australia.

DISTANCES BETWEEN PERTH AND SELECTED TOWNS AND LOCALITIES IN WESTERN AUSTRALIA
(Route miles)

Town or locality	Road	Rail	Sea (*a*)	Air (*b*)
North of 26°S. latitude—				
Coastal—				
Broome	1,390	....	1,198	1,045
Carnarvon	611	....	485	512
Dampier	1,018	....	856	788
Denham (Shark Bay)	568	....	482	428
Derby	1,492	....	1,379	1,130
Exmouth	833	....	617	700
Onslow	878	....	734	755
Port Hedland	1,048	....	950	834
Roebourne	1,034	....	884	848
Wyndham	2,023	....	1,769	1,456
Inland—				
Fitzroy Crossing	1,596	....	....	1,267
Goldsworthy	1,078	....	....	....
Halls Creek	1,795	....	....	1,401
Kununurra	2,027	....	....	1,481
Marble Bar	936	....	....	865
Newman	747	....	....	637
Nullagine	865	....	....	770
Tom Price	1,004	....	....	660
Wittenoom	923	....	....	703
South of 26°S. latitude—				
Coastal—				
Albany	254	361	340	235
Augusta	206	....	178	....
Bunbury	116	115	95	....
Busselton	147	149	106	....
Esperance	451	598	570	368
Eucla	893	....	....	....
Fremantle	11	12	....	....
Geraldton	312	306	217	249
Inland—				
Bridgetown	169	174	....	....

Town or locality	Road	Rail	Air (*b*)
South of 26°S. latitude—			
Inland—*continued*			
Bruce Rock	152	193	....
Collie	126	124	....
Coolgardie	346	364	....
Donnybrook	133	132	....
Forrest	....	783	....
Harvey	87	86	....
Hyden	212	344	....
Kalgoorlie	371	407	366
Kambalda	383	....	....
Katanning	176	244	....
Koolyanobbing	263	284	....
Leonora	517	549	466
Madura	780	....	....
Manjimup	191	197	....
Meekatharra	475	608	406
Merredin	162	177	....
Moora	117	108	....
Mount Barker	224	321	....
Mukinbudin	182	223	....
Mullewa	291	339	....
Nannup	176	181	....
Narrogin	120	181	....
Newdegate	249	325	....
Norseman	451	473	344
Northam	61	76	....
Pinjarra	54	54	....
Ravensthorpe	331	....	....
Southern Cross	230	249	....
Wagin	142	212	....
Wiluna	587	....	509
Wyalkatchem	119	148	....
York	61	97	....

(*a*) Nautical miles from Fremantle. (*b*) Shortest regular route.

Distances by road, rail, sea and air between Perth and other capital cities in Australia are shown in the next table.

DISTANCES BETWEEN PERTH AND OTHER CAPITAL CITIES
(Miles)

Method of travel	Canberra	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Darwin
Road	2,457	(a) 2,594	(a) 2,168	(a) 3,222	1,704	....	2,564
Rail	(b) 2,663	(b) 2,461	2,115	(b) 3,074	1,632	....	....
Sea (c)	....	(d) 2,140	(d) 1,681	(d) 2,638	(d) 1,343	(d) 1,806	(d) 1,841
Air	1,991	(a) 2,120	(a) 1,784	(a) 2,599	1,377	2,176	1,868

(a) Via Adelaide. (b) Via Broken Hill. (c) Distance in nautical miles. (d) From Fremantle.

SHIPPING

Western Australia's sea-borne trade is conducted through the Port of Fremantle and a number of outports. Of these, Geraldton, Bunbury, Busselton, Albany and Esperance are situated in the more highly-developed south-western and southern part of the State. The less closely-settled areas of the north-west and the north are served by ports and other landing points at Useless Loop (Shark Bay), Carnarvon, Cape Cuvier, Exmouth, Onslow, Barrow Island, Dampier, Point Samson, Port Hedland, Broome, Derby, Yampi and Wyndham.

The following table shows the number and net tonnage of vessels entered at each port, and the tonnage of cargo discharged at and shipped from each port, during the years 1966-67 and 1967-68. The figures exclude particulars of naval vessels; yachts and other craft used for pleasure; foreign fishing vessels that neither load nor discharge cargo; fishing vessels registered in Australia; vessels engaged in geographic, seismic or oceanographic surveys; offshore oil-drilling rigs and vessels servicing them; and vessels of 200 registered net tons and under.

VESSELS ENTERED AND CARGO HANDLED AT PORTS

Port	Vessels entered				Cargo handled			
	1966–67		1967–68		1966–67 (a)		1967–68	
	Vessels	Net tons	Vessels	Net tons	Discharged	Shipped	Discharged	Shipped
		'000		'000	'000 tons	'000 tons	'000 tons	'000 tons
Port of Fremantle	*1,394	*8,189	1,404	8,662	4,891	4,006	5,349	4,720
Other ports—								
Albany	159	798	184	947	219	331	281	365
Barrow Island (b)	56	155	96	555	19	132	18	1,089
Broome	97	211	108	254	13	5	24	8
Bunbury	157	757	157	760	248	703	262	753
Busselton	18	36	11	19	....	12	....	17
Carnarvon (c)	15	22	21	58	16	....	17	75
Dampier	120	881	206	2,285	62	2,458	154	6,926
Derby	101	189	89	174	10	6	27	5
Esperance	41	216	49	236	150	110	159	128
Exmouth	18	54	16	88	22	(d)	14	(d)
Geraldton	159	688	154	756	192	1,127	210	1,142
Onslow	71	126	68	125	2	1	2	1
Point Samson	67	124	67	123	6	7	4	7
Port Hedland	214	980	300	1,540	69	2,390	283	3,943
Wyndham	99	214	96	225	38	17	30	19
Yampi	185	1,267	158	971	14	2,906	13	2,147
Total	1,577	6,718	1,780	9,116	1,080	10,203	1,497	16,625
All ports	*2,971	*14,906	3,184	17,779	5,971	14,209	6,846	21,345

(a) Figures revised since previous issue. (b) Buoyed sea terminal. (c) Includes the landing point at Useless Loop. (d) Less than 500 tons. * Revised.

The net tonnage of a vessel, expressed in tons of 100 cubic feet, represents the volume of enclosed space that can be used for cargo and passengers. Most cargoes are recorded in terms of the ton weight of 2,240 lb but some cargo, consisting mainly of bulky commodities, is recorded on the basis of the ton measurement, a unit equivalent to forty cubic

feet of space. Statistics are compiled accordingly in terms of 'tons weight' or 'tons measurement'. In order to provide a ready comparison, as in the previous table, of the volume of cargo handled at the several ports or in different years, the amounts recorded in the two categories have been aggregated. In the following table, details of cargo handled at each port during 1967-68 are presented separately on the basis of 'tons weight' and 'tons measurement'.

TONNAGE OF INTRASTATE, INTERSTATE AND OVERSEAS CARGO: 1967-68
(Tons)

Port	Intrastate		Interstate		Overseas		Total	
	Weight	Measurement	Weight	Measurement	Weight	Measurement	Weight	Measurement
DISCHARGED								
Port of Fremantle	343,577	10,264	815,713	167,724	3,741,532	270,582	4,900,822	448,570
Other ports—								
Albany	54,100	....	25,788	720	200,736	26	280,624	746
Barrow Island (*a*)	8,404	1,117	1,108	....	5,897	1,010	15,409	2,127
Broome	9,773	8,771	37	141	3,518	1,574	13,328	10,486
Bunbury	89,068	....	16,160	....	156,876	75	262,104	75
Busselton	....	....	....	....	....	....	....	....
Carnarvon (*b*)	7,443	....	....	....	9,525	....	16,968	....
Dampier	18,127	8,745	6,447	4,037	106,486	10,472	131,060	23,254
Derby	4,422	11,187	49	47	11,343	....	15,814	11,234
Esperance	33,806	....	38,320	....	87,118	....	159,244	....
Exmouth	11,392	....	....	....	936	1,354	12,328	1,354
Geraldton	75,264	696	74	1	133,728	410	209,066	1,107
Onslow	466	1,054	....	....	....	....	466	1,054
Point Samson	2,835	....	400	8	259	472	3,494	480
Port Hedland	140,558	23,607	78,890	445	37,406	1,887	256,854	25,939
Wyndham	8,521	13,489	1,870	271	5,399	335	15,790	14,095
Yampi	9,695	....	15	....	2,800	....	12,510	....
Total	473,874	68,666	169,158	5,670	762,027	17,615	1,405,059	91,951
All ports	817,451	78,930	984,871	173,394	4,503,559	288,197	6,305,881	540,521
SHIPPED								
Port of Fremantle	432,387	74,958	1,642,740	52,974	2,358,353	158,670	4,433,480	286,602
Other ports—								
Albany	....	72	3,505	3	341,763	19,500	345,268	19,575
Barrow Island (*a*)	232,926	5	837,119	....	18,836	....	1,088,881	5
Broome	962	1,909	20	204	5,179	....	6,161	2,113
Bunbury	68,197	4,598	50,337	....	605,852	23,918	724,386	28,516
Busselton	....	....	9,422	6,090	1,712	....	11,134	6,090
Carnarvon (*b*)	....	....	....	....	74,522	....	74,522	....
Dampier	60	63	368	....	6,925,126	....	6,925,554	63
Derby	508	4,103	92	235	288	80	888	4,418
Esperance	....	....	3,430	....	124,968	....	128,398	....
Exmouth	....	32	....	....	65	84	65	116
Geraldton	783	482	4,084	17	1,137,010	....	1,141,877	499
Onslow	345	623	....	9	....	....	345	632
Point Samson	2,183	85	7	2	4,955	....	7,145	87
Port Hedland	1,623	1,912	361	110	3,939,039	....	3,941,023	2,022
Wyndham	702	2,489	4,335	298	10,887	....	15,924	2,787
Yampi	64,799	....	1,947,635	....	134,210	....	2,146,644	....
Total	373,088	16,373	2,860,715	6,968	13,324,412	43,582	16,558,215	66,923
All ports	805,475	91,331	4,503,455	59,942	15,682,765	202,252	20,991,695	353,525

(*a*) Buoyed sea terminal. (*b*) Includes the landing point at Useless Loop.

Apart from general cargo, overseas and interstate consignments discharged were principally petroleum products, iron and steel products, rock phosphate and sulphur. Outward cargoes, with the exception of refined petroleum products and steel products shipped from the Port of Fremantle (outer harbour), consisted largely of primary products, including minerals. Cargoes shipped from the ports of Albany and Esperance comprised mainly wheat, oats and barley. At Bunbury the principal cargo was ilmenite, followed next in importance by wheat. Iron ore and wheat were the main exports from

Geraldton. Timber was the principal cargo shipped from Busselton. In the northern part of the State, Yampi, Dampier and Port Hedland are the major ports for shipment of iron ore. The buoyed sea terminal at Barrow Island provides facilities for the loading of crude petroleum. From other ports in the area, exports consist mainly of primary products such as livestock, meat, wool and cotton.

The Western Australian Coastal Shipping Commission was established in 1965 to carry on the services formerly maintained by the State Shipping Service. The Commission's ships operate along the north-west and northern coasts, calling regularly at ports between Fremantle and Darwin (Northern Territory). Besides general cargo the freight discharged at north-west and northern ports consists mainly of refined petroleum products, building and construction materials, refrigerated cargo, vehicles and livestock. Cargoes carried south to Fremantle are mainly primary products, such as meat, livestock, wool and minerals.

VESSELS ENTERED AT EACH PORT: 1967–68

Port	From other Western Australian ports	From other Australian States		From overseas countries			Total	
		Direct	Via other Western Australian ports	Direct	Via other Australian States	Via other Western Australian ports	Vessels	Net tons '000
Port of Fremantle	259	443	53	484	73	92	1,404	8,662
Other ports—								
Albany	50	91	....	31	1	11	184	947
Barrow Island (*a*)	51	26	2	7	1	9	96	555
Broome	87	3	6	5	3	4	108	254
Bunbury	80	27	2	15	1	32	157	760
Busselton	11	....	....	....	....	....	11	19
Carnarvon (*b*)	9	....	....	2	....	10	21	58
Dampier	33	6	2	153	8	4	206	2,285
Derby	56	7	13	7	....	6	89	174
Esperance	15	9	....	24	....	1	49	236
Exmouth	6	....	....	5	1	4	16	88
Geraldton	56	2	8	84	....	4	154	756
Onslow	67	1	....	....	....	....	68	125
Point Samson	63	....	2	1	....	1	67	123
Port Hedland	114	4	37	122	6	17	300	1,540
Wyndham	52	24	8	10	2	....	96	225
Yampi	71	55	2	30	....	....	158	971

(*a*) Buoyed sea terminal. (*b*) Includes the landing point at Useless Loop.

VESSELS CLEARED FROM EACH PORT: 1967–68

Port	To other Western Australian ports	To other Australian States		To overseas countries			Total	
		Direct	Via other Western Australian ports	Direct	Via other Australian States	Via other Western Australian ports	Vessels	Net tons '000
Port of Fremantle	211	412	76	638	37	31	1,405	8,658
Other ports—								
Albany	44	10	2	59	6	60	181	931
Barrow Island (*a*)	52	39	2	2	....	1	96	555
Broome	80	4	12	1	....	11	108	254
Bunbury	43	13	....	28	4	74	162	780
Busselton	....	10	....	....	1	....	11	19
Carnarvon (*b*)	5	....	....	16	....	....	21	58
Dampier	58	9	2	134	1	1	205	2,282
Derby	56	1	29	1	....	4	91	177
Esperance	23	4	....	8	2	12	49	236
Exmouth	6	....	....	....	....	10	16	88
Geraldton	41	2	26	40	....	44	153	753
Onslow	65	....	3	....	....	....	68	125
Point Samson	59	....	7	1	....	....	67	123
Port Hedland	120	11	33	135	....	....	299	1,539
Wyndham	41	43	....	2	4	6	96	225
Yampi	60	88	7	4	....	....	159	987

(*a*) Buoyed sea terminal. (*b*) Includes the landing point at Useless Loop.

In the previous two tables vessels entered at and cleared from each Western Australian port during 1967-68 are classified according to the direction of the voyage on which each vessel was engaged. 'Direction' is determined by reference to the port of commencement of the inward voyage or the port of termination of the outward voyage.

Administration of Ports

The State Government, through the Harbour and Light Department, controls the ports at Broome, Busselton, Carnarvon, Derby, Onslow, Point Samson, Port Hedland and Wyndham. The ports at Albany, Bunbury, Esperance, Fremantle and Geraldton are controlled by separately-constituted authorities established by Act of Parliament. Private operators control the ports (or landing points) at Barrow Island, Cape Cuvier, Dampier, Exmouth, Useless Loop and Yampi.

THE PORT OF FREMANTLE

The Port of Fremantle is under the control of the Fremantle Port Authority established in terms of the *Fremantle Port Authority Act, 1902-1969*. The Authority consists of five commissioners, including a chairman, appointed by the Governor. The principal executive officer is the General Manager.

Under the provisions of the Act, the Authority has the exclusive control of the Port of Fremantle and is responsible for the development, maintenance and preservation of the property vested in it. The Authority provides and maintains navigation channels, wharves, transit cargo sheds, roads, permanent ways, and all necessary ancillary facilities. It operates the port's pilotage and signal services, and undertakes the mooring and unmooring of ships, as well as the shore handling of cargo, for which purpose it acts as wharfinger, employs labour and provides and operates mechanical and other equipment.

Statistics of activity at the Port of Fremantle during the years 1966-67 and 1967-68 are given in the tables on pages 438-40.

Finance. The Fremantle Port Authority derives its revenue from a number of charges which include rates payable on cargo handled by the Authority, wharfage on cargo landed at or shipped from the port, and tonnage rates based on the gross registered tonnage of ships and the period of occupancy of a berth. Other charges are those relating to pilotage, rent, hire of handling equipment, and general port services. Expenditure includes wage and salary payments, the cost of materials, and expenses incurred in the maintenance of facilities and equipment and the provision of port services. Funds for capital works undertaken by the Authority are provided by allocations from the General Loan Fund (see pages 273-4), by borrowing against debentures or inscribed stock and by the retention of revenue surpluses.

General Description. The Port of Fremantle is situated on the western coast of Australia at 32°S. latitude and is the principal port of Western Australia. It is an all-weather port, little troubled by storms or fog and virtually tideless. It provides modern facilities for the handling of ships, passengers and cargo, and is connected to the road and rail systems of Western Australia and Australia generally.

The Port of Fremantle covers an area of 180 square miles and comprises an Inner Harbour and an Outer Harbour. Its boundaries are delineated on the map facing page 448 and are described in a schedule to the Fremantle Port Authority Act.

The Inner Harbour is constructed within the mouth of the Swan River, about twelve miles from Perth. It is protected by two breakwaters 4,835 feet and 2,040 feet long, and is approached from Gage Roads through a short entrance channel dredged to a depth of thirty-six feet at low water. It encloses 168 acres of water dredged throughout to thirty-six feet at low water, and is the centre of the general cargo trade of the port.

There are twenty land-backed berths in the Inner Harbour, with a total quayage of 12,771 feet. Eight of these berths are at Victoria Quay and twelve at North Quay, including a recently-completed container berth. Transit sheds occupy an area of 636,000

square feet and large paved areas are provided for the open storage of cargo. Preparatory work is well advanced on the extension of the Inner Harbour to provide two additional berths, one at Victoria Quay and one at North Quay. These berths will be equipped to meet increasing demands for the berthing of all classes of shipping and for specialised cargo handling.

The Outer Harbour has seventy-three square miles of deep water and is protected from the west by islands and reefs. It embraces three main anchorages of depths up to sixty feet. Gage Roads, the most northerly of these anchorages, serves as an approach to the Inner Harbour. Owen Anchorage is centrally situated between Success and Parmelia Banks. The only operative commercial berth in this anchorage is Woodman Point Jetty, which is used exclusively for handling explosives. The largest and most protected of the anchorages, Cockburn Sound, lies to the south and serves the Kwinana industrial area.

There are five jetties in Cockburn Sound which provide for the handling of bulk cargoes (see map facing page 448). Four of these are owned and operated by private companies concerned with specialised cargoes. They comprise an oil refinery jetty at which three tankers can berth simultaneously, two jetties to serve a blast furnace and a steel rolling mill, and a jetty for the export of refined alumina and the import of caustic soda. The fifth jetty is a common-user facility built by the Fremantle Port Authority. Although fitted initially with machinery for the unloading of rock phosphate and sulphur for a nearby fertiliser works, it is so designed as to allow extension for the bulk loading of iron ore and other cargoes.

An extensive and continuing dredging programme has been necessary in order to provide access to Cockburn Sound. In 1954, dredging of channels to thirty-eight feet at low water through Success and Parmelia Banks enabled tankers of up to 32,000 deadweight tons to berth at the oil refinery, and further deepening in 1967, to forty-five feet at low water, provided access for vessels of up to 70,000 deadweight tons. Additional dredging of the Stirling Channel in 1967, to a depth of 38 feet 6 inches at low water, improved access to the steel works situated north of the oil refinery. The adjacent turning basin was deepened to thirty-six feet at low water to accommodate ships carrying bulk commodities to or from the steel works. The alumina refinery located north of the steel works is now able to export its products in ships of up to 30,000 tons, due to the completion in 1968 of the dredging of the Calista Channel to a depth of thirty-eight feet at low water.

Handling of Cargo. The types of cargoes passing through the port comprise three main categories, namely unitised cargoes, bulk cargoes, and general cargo, for each of which special facilities and, to an increasing extent, specialised berths are provided.

Unitised cargoes, principally in containers, have been handled at Inner Harbour berths for over a decade. Following the revolutionary developments in recent years, however, the Fremantle Port Authority has constructed a special container berth (No. 12 North Quay), fitted with a ' Portainer ' crane of sixty-five tons maximum lifting capacity, through which it is intended that the greater part of the container trade will flow to privately-owned terminals established on leased land adjacent to the berth. Provision has been made for a second container berth immediately alongside, and two other berths at North Quay will shortly be reconstructed to provide general and roll-on/roll-off facilities.

Bulk cargoes such as phosphatic rock, sulphur and coal have been handled in the Inner Harbour for many years at Berths Nos 4 and 5 where four fast-operating 7½-ton cranes each handle up to 200 tons per hour. Since the establishment of the oil refinery at Kwinana in 1955 and the dredging of Success and Parmelia Banks to provide access for bulk carriers, developments in bulk handling have been principally associated with that area and it is expected that in the near future only relatively small tonnages of bulk cargo will be handled at berths in the Inner Harbour.

The Inner Harbour, which is highly mechanised to ensure the fast handling of cargo and rapid turn-round of ships, has always been and will remain the principal handling point for general cargo. Although the normal method of discharging or loading ships is by means of ship's gear, the Port Authority's electric cranes are always available to assist.



PORT OF FREMANTLE INNER HARBOUR



Block by courtesy of Vickers Hoskins Pty Ltd

PORTAINER CRANE AT FREMANTLE

The container terminal at North Quay in the Inner Harbour at Fremantle was officially opened on 29 March 1969. The berth is equipped with a locally-built portainer crane said to be the largest container-handling crane in the world. Weighing some 500 tons and with a lifting capacity of up to sixty-five tons, the crane can handle one 40-foot container or two unattached 20-foot containers simultaneously. With its jib retracted, the crane rises over 200 feet above the wharf level.




L257

AVON MARSHALLING YARD

Standard gauge requirements resulted in the complete renewal of railway complexes in the Northam and Merredin areas. Illustrated is the Avon Yard two miles west of Northam, a major two-gauge complex which occupies nearly 100 acres. The Yard includes an all-diesel locomotive depot and an up-to-date freight terminal equipped with the latest handling facilities for the transfer of traffic between the two gauges. Four light towers 150 feet in height illuminate the Yard for night operations.

Blocks by courtesy of the Western Australian Government Railways

DIESEL LOCOMOTIVE

All trains on the standard gauge railway across the continent will be diesel powered. Almost twice as powerful as the largest narrow gauge diesels in Western Australia, the 3,300 hp locomotive illustrated is capable of operating at speeds of up to 80 mph. Each locomotive weighs 135 tons and can haul a freight load of 3,300 tons at 50 mph. Three locomotives coupled together and operated by one crew are used to haul iron-ore trains of up to 9,000 tons from Koolyanobbing to Kwinana.

All berths are fitted with crane rails for the operation of portal-type quay cranes with lifting capacities of 3, 7½ and 20 tons, while two floating cranes of eighty tons and fifteen tons capacity are available for heavy lifts to and from ships. Berth No. 9 at North Quay is a bulk grain terminal where a belt conveyor system with a maximum loading rate of 1,600 tons per hour loads grain from a nearby vertical storage silo direct to ships.

Fremantle is the largest bunkering port in Australia. All Inner Harbour berths are equipped to supply bunker fuel direct to ships from privately-owned storage tanks close to the port and two oil lighters are available to service ships berthed in the Inner Harbour or anchored in the Outer Harbour. Ships can also take on bunker fuel oil at the oil refinery jetty in the Outer Harbour, but this service is used mainly by tankers which berth at the jetty to load or discharge oil cargoes.

Passenger Facilities. A considerable volume of passenger traffic is handled at the Port of Fremantle. During 1968, more than 50,000 persons embarked or disembarked, and over 140,000 transit passengers passed through the port. To provide for the fast turn-round of passenger ships and for the rapid movement of passengers and their luggage special facilities are provided at a modern two-berth passenger terminal at Victoria Quay. Uniformed hostesses with a broad general knowledge of Western Australia and speaking several languages meet every passenger-carrying ship berthing in the Inner Harbour. When a passenger ship is berthed at the terminal, hostesses are on duty at inquiry desks for the duration of the ship's stay in port.

RAILWAYS

Railways open for general and passenger traffic in the southern part of the State are operated by the Western Australian Government Railways Commission. The system is linked with railways of other States by the Commonwealth Government Trans-Australian Railway between Kalgoorlie in Western Australia and Port Pirie in South Australia. There are, in addition, private railways for the haulage of iron ore in the northern part of the State and timber in the south-west.

At 30 June 1969 there were 4,280 miles of railway open for general and passenger traffic in Western Australia. Of this total, 3,826 miles were owned by the State Government and operated by the Western Australian Government Railways Commission, and 454 miles were owned and operated by the Commonwealth Government. The Western Australian Government Railways Commission also operated thirteen miles of privately-owned line connecting iron-ore deposits at Koolanooka with its railway to Geraldton. Other private railways used for the transport of iron ore were those between Newman and Port Hedland (265 miles), Goldsworthy and Port Hedland (71 miles), and Tom Price and Dampier (182 miles). In addition, there were seventeen miles of private railway operated by timber millers.

Government and private railways in Western Australia are shown on the map of the State appearing at the back of the Year Book.

The Western Australian Government Railways Commission

The *Government Railways Act, 1904-1967* constitutes a Commission, in the person of the Commissioner of Railways, who is responsible, subject to the Minister, for the administration of the Act.

Financial procedure for the Western Australian Government Railways Commission is basically the same as for other Departments. Receipts are paid into the Consolidated Revenue Fund, and finance for its operations and the servicing of debt is provided from the Fund by statutory appropriations. Loan moneys, for the construction and improvement of permanent way, for the purchase of traction units and rolling stock and for other capital outlay, are advanced by the Parliament from the General Loan Fund.

In addition to its railway services, the Commission operates an extensive system of road services for the carriage of passengers, mail and freight.

Summary of Operations. The following table gives particulars of the financial transactions, railway operations and road service operations of the Western Australian Government Railways for each of the years 1963-64 to 1967-68.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS (*a*)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
FINANCE (*b*)					
	$'000	$'000	$'000	$'000	$'000
Capital investment at 30 June (*c*)	124,034	127,449	133,825	139,393	145,580
Operating revenues—					
Passenger fares	2,684	2,937	3,001	3,217	3,367
Parcels and mails	1,192	1,259	1,379	1,483	1,530
Paying goods and livestock	29,873	31,036	37,708	42,772	46,098
Miscellaneous	1,441	1,454	1,582	1,649	1,778
Total operating revenues	35,190	36,686	43,669	49,120	52,773
Operating expenses	32,250	32,920	35,985	40,170	42,623
Excess of operating revenues over expenses	2,939	3,766	7,684	8,950	10,149
Depreciation	4,049	4,354	4,669	*5,340	6,140
Interest charges	5,577	6,232	7,006	8,069	8,810
Total deficit	6,687	6,820	3,991	4,459	4,800
RAILWAY OPERATIONS					
Route mileage at 30 June—					
3 ft 6 in gauge	3,677	3,733	*3,747	(*d*) 3,502	(*d*) 3,502
4 ft 8½ in gauge	....	....	....	247	249
Dual gauge	....	....	....	66	64
Employees at 30 June	11,508	11,390	11,520	*11,321	11,226
	'000	'000	'000	'000	'000
Number of—					
Train miles run (*e*)	8,332	8,324	8,823	9,124	9,226
Passengers carried—					
Suburban	10,298	9,911	9,748	9,468	9,628
Country	516	484	419	343	342
Total	10,814	10,395	10,168	9,811	9,970
Tons of freight—					
Paying goods and livestock	5,187	5,229	6,384	7,873	8,910
Departmental (*f*)	521	512	452	461	491
Total	5,708	5,741	6,836	8,334	9,402
Ton mileage—					
Paying goods and livestock	813,319	842,066	1,020,770	1,244,067	1,571,749
Departmental	46,390	46,796	46,122	43,095	40,534
Total	859,709	888,862	1,066,891	1,287,162	1,612,282
ROAD SERVICE OPERATIONS					
Route mileage at 30 June—					
Omnibus	3,256	3,732	3,730	3,572	3,958
Freight vehicle	*919	1,314	1,352	1,426	1,807
Employees at 30 June	174	233	244	246	256
	'000	'000	'000	'000	'000
Number of—					
Miles run—					
Omnibus	1,671	1,949	2,061	1,945	1,875
Freight vehicle	546	759	941	909	895
Total	2,217	2,708	3,002	2,854	2,770
Passengers carried	251	260	255	237	228

(*a*) The railway and road service operations of The Midland Railway Company of Western Australia Limited were transferred to Western Australian Government Railways control with effect from 1 August 1964. (*b*) Includes financial transactions in relation to road services. (*c*) Including Stores Funds. (*d*) Excludes route mileage of 3 ft 6 in gauge (192 miles at 30 June 1967 and 196 miles at 30 June 1968) which parallels the 4 ft 8½ in gauge line. (*e*) Revenue and non-revenue train miles. (*f*) Departmental freight comprises mainly coal, oil, water, ballast, timber and rails. * Revised.

Goods and Livestock Carried. The following table shows the tonnage of paying goods and livestock carried during each year in the period from 1963-64 to 1967-68. The classification used in the table is that adopted by the Railways Commission in dissecting its freight transport statistics. The actual number of livestock carried in each of the five years is given in the second part of the table.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS
TONNAGE OF PAYING GOODS (*a*) CARRIED

Freight classification	1963–64	1964–65	1965–66	1966–67	1967–68
Wheat	1,473,981	1,187,758	1,966,892	2,338,140	2,276,520
Other grain	198,065	155,917	276,028	253,812	212,706
Grain products	77,430	71,337	54,281	43,757	46,057
Chaff	6,271	5,977	5,657	6,208	6,842
Fertilisers	521,910	539,718	587,486	664,357	703,806
Fruit and vegetables	96,838	112,154	102,994	98,790	95,672
Wool	89,871	86,018	100,182	109,258	116,824
Timber	363,069	359,387	367,536	363,545	392,676
Firewood	1,621	1,914	729	284	276
Coal, coke, shale and charcoal (*b*)	704,244	757,836	678,385	590,994	359,394
Ores and minerals	626,560	868,019	1,101,842	2,264,298	3,477,873
Oil in tank wagons	183,781	198,046	214,752	237,571	248,163
Other classifications	728,922	784,308	819,909	804,838	885,828
Livestock (‡)	114,905	100,841	106,836	97,126	87,827
Total	5,187,468	5,229,230	6,383,509	7,872,978	8,910,464
(‡) Number of livestock carried—					
Sheep	1,374,837	1,429,584	1,619,214	1,523,968	1,460,691
Cattle	120,043	88,292	85,007	73,081	58,391
Pigs	101,235	94,044	102,732	107,297	119,895
Horses	1,542	1,285	898	755	576

(*a*) Including livestock. (*b*) Predominantly local coal.

Railways Rolling Stock. The following table shows the numbers of the various categories of rolling stock of the Western Australian Government Railways in service at 30 June of the years 1964 to 1968.

WESTERN AUSTRALIAN GOVERNMENT RAILWAYS
ROLLING STOCK IN SERVICE

Category	At 30 June—									
	1964	1965	1966	1967	1968	1964	1965	1966	1967	1968
	3 ft 6 in gauge					4 ft 8½ in gauge				
Locomotives—										
Steam	244	240	238	237	215	....	....	....	....	....
Diesel—										
Electric	75	89	90	90	105	....	5	8	19	28
Mechanical	4	4	4	4	4	....	....	....	....	....
Hydraulic	5	8	11	11	11	....	....	....	....	....
Total	328	341	343	342	335	....	5	8	19	28
Coaching stock—										
Passenger cars	160	119	117	94	75	....	....	....	....	....
Sleeping cars	59	62	59	59	59	....	....	....	....	....
Lounge, buffet, and dining cars	9	11	11	11	11	....	....	....	....	....
Rail motor cars	38	37	37	37	47	....	....	....	....	....
Rail motor trailers	22	25	27	26	34	....	....	....	....	....
Service vehicles (*a*)	12	12	12	12	12	....	....	....	....	....
Total	300	266	263	239	238	....	....	....	....	....
Goods stock (*b*)	11,704	12,100	11,994	11,842	11,713	....	45	124	447	494
Service stock (*c*)	922	915	922	933	873	....	106	106	108	108

(*a*) Includes inspection, track recorder and special cars. (*b*) Includes brake vans, goods wagons, livestock wagons, mineral wagons, etc. (*c*) Includes ballast wagons, workmen's vans, ash disposal wagons, water tanks, etc. Excludes service vehicles shown under *Coaching stock*; see note (*a*).

Iron-ore Railways

In recent years the exploitation of extensive inland deposits of iron ore in Western Australia has necessitated the construction of a number of railways for the transport of ore from the mines to the coast. Conditions applying to the construction and operation of these railways are incorporated in agreements made between the State Government and mining companies and ratified by Act of Parliament.

The following summary relates to railways in use for the transport of iron ore at 31 December 1969. The quantity of ore carried on these railways was 2·65 million tons in 1966, 9·69 million tons in 1967, 15·5 million tons in 1968, and 26·0 million tons in 1969. At 30 June 1969 there were thirty-two locomotives and 1,144 ore wagons in service.

RAILWAYS USED FOR TRANSPORT OF IRON ORE

Railway	Enabling Act	Length (route miles)	Gauge	Date operative (*a*)
Goldsworthy-Port Hedland (*b*)	No. 97 of 1964 (*c*)	71	4 ft 8½ in	1966—23 May
Tom Price-Dampier (*b*)	No. 24 of 1963 (*d*)	182	4 ft 8½ in	1966— 1 July
Newman-Port Hedland (*b*)	No. 75 of 1964 (*e*)	265	4 ft 8½ in	1969—18 January
Westmine-Tilley (*f*)	No. 104 of 1964 (*g*)	13	3 ft 6 in	1966—31 January
Koolyanobbing-Kwinana (*h*)	No. 27 of 1961 (*i*)	306	4 ft 8½ in	1967—10 April

(*a*) Date on which first load of iron ore was dispatched from mine. (*b*) Privately owned and operated. (*c*) *Iron Ore (Mount Goldsworthy) Agreement Act, 1964.* (*d*) *Iron Ore (Hamersley Range) Agreement Act, 1963.* (*e*) *Iron Ore (Mount Newman) Agreement Act, 1964.* (*f*) Privately owned, but operated by the Western Australian Government Railways Commission. Connected at Tilley to the Western Australian Government Railways line to the port of Geraldton. (*g*) *Iron Ore (Tallering Peak) Agreement Act, 1964.* (*h*) Part of the Western Australian Government Railways system; open for general and passenger traffic. (*i*) *Railways (Standard Gauge) Construction Act, 1961.* See also letterpress on page 448.

Commonwealth Government Railways

The Commonwealth Government Railways comprise four separate systems. These are the Trans-Australian Railway, operating partly in Western Australia and partly in South Australia; the Central Australia Railway, partly in South Australia and partly in the Northern Territory; the North Australia Railway, wholly in the Northern Territory; and the Australian Capital Territory Railway.

Construction of the Trans-Australian Railway was begun at Port Augusta, the original South Australian terminus of the line, in 1912 and work was completed in 1917. Of the total length of 1,108 miles between Kalgoorlie and Port Pirie (South Australia), 454 miles are in Western Australia. Although statistical details of activities on each of the four systems are available, it is not possible to give separate particulars of the operations in Western Australia of the Trans-Australian Railway. Some statistics relating to the Commonwealth Government Railways are shown in the next table.

Operations of Government Railways in Australia

The following table gives a summary of operations during the year ended 30 June 1968 on each of the railway systems owned by the State and Commonwealth Governments.

GOVERNMENT RAILWAYS IN AUSTRALIA—SUMMARY OF OPERATIONS, 1967-68

Railway system of—	Route mileage at 30 June	Revenue train miles run	Passenger-journeys	Goods and livestock carried	Gross earnings	Average number of employees (*a*)
		'000	'000	'000 tons	$'000	
New South Wales	6,061	38,535	253,313	30,745	224,966	45,251
Victoria	4,216	19,885	146,268	11,116	99,301	(*b*) 27,520
Queensland	5,825	16,831	26,591	11,133	94,018	23,925
South Australia	2,481	6,418	15,242	4,368	28,046	8,011
Western Australia	3,815	8,372	9,970	8,910	51,628	11,164
Tasmania	500	1,247	1,087	1,162	6,587	2,249
Commonwealth—						
Trans-Australian	1,108	2,158	238	656	14,427	2,041
Central Australia	818	850	22	2,282	6,325	1,116
North Australia	317	183	(*c*)	458	1,269	200
Australian Capital Territory	5	15	87	231	213	62
Australia	25,146	94,494	452,818	71,061	526,779	121,539

(*a*) Excluding construction staff except for Victoria where construction staff are included. (*b*) See footnote (*a*). (*c*) Less than 500 passenger-journeys.

It will be noted that particulars of route miles shown for the New South Wales and Victorian systems differ from the details given for those States in the table in the next section *Railway Gauges*, which is compiled according to the State or Territory in which the several lengths of line are situated. The Victorian system includes lines extending into New South Wales, the aggregate length of such lines in New South Wales being 204 miles.

Railway Gauges

The following table shows the route mileage of government railways of each gauge in each of the Australian States and Territories at 30 June 1968. Except where otherwise indicated, the mileages shown relate to lines owned by the several State railway authorities.

GOVERNMENT RAILWAYS IN EACH STATE AND TERRITORY OF AUSTRALIA
ROUTE MILEAGE OPEN AT 30 JUNE 1968

State or Territory	Route miles of gauge—					Total route miles
	5 ft 3 in	4 ft 8½ in	3 ft 6 in	2 ft 6 in	2 ft 0 in	
State systems in—						
New South Wales	(*a*) 204	6,061	....	....	....	6,265
Victoria	(*b*) 3,801	202	....	9	....	4,012
Queensland	....	(*c*) 69	5,726	....	30	5,825
South Australia	1,652	....	829	....	....	2,481
Western Australia	....	313	(*d*) 3,502	....	....	3,815
Tasmania	....	....	500	....	....	500
Commonwealth systems in—						
South Australia	....	871	428	....	....	1,299
Western Australia	....	454	....	....	....	454
Northern Territory	....	....	490	....	....	490
Australian Capital Territory	....	5	....	....	....	5
Total route miles	5,657	7,975	11,475	9	30	25,146

(*a*) Part of the Victorian railway system. (*b*) Excludes 202 miles of 5 ft 3 in gauge line which almost parallels the 4 ft 8½ in gauge line between Melbourne and the Murray River. (*c*) Operated by the New South Wales Government Railways. (*d*) Excludes 196 miles of 3 ft 6 in gauge line which parallels the 4 ft 8½ in gauge line. Excludes 64 miles of 4 ft 8½ in /3 ft 6 in dual gauge line which is included in the 4 ft 8½ in gauge line.

Standardisation of gauges on main trunk routes throughout Australia and on some other lines has been the subject of inquiries by the Commonwealth Government and of agreements between the Commonwealth and some States. The principle of standardisation was accepted at a Premiers' Conference in August 1945 following an investigation instituted by the Commonwealth Government in March 1944 and the submission of a favourable report in March 1945. The use of the 4 ft 8½ in gauge was recommended for adoption in a unification plan, one of the projects in which was to be the construction of a line from the Port of Fremantle through Perth to Kalgoorlie. Approval was given to the making of a survey for a route, and field work began in October 1945. The work was continued until December 1947, when it was abandoned pending agreement between the Governments of the Commonwealth and the State on the provision of finance for the unification scheme. In the years immediately following the second World War it became apparent that considerable expenditure would be necessary on the rehabilitation of the Western Australian Government Railways. The urgency and the magnitude of this undertaking were such that all the Department's available resources of money, labour and materials were absorbed in the programme and, in these circumstances, works associated with the unification plan could not be contemplated but, where possible, works connected with the restoration of the 3 ft 6 in system were so designed as to make provision for later conversion to the standard gauge.

In March 1956, a committee consisting of members of the Federal Parliament was appointed to re-examine the matter of standardisation. Among its recommendations, submitted in October 1956, was the provision of the standard gauge line between Fremantle and Kalgoorlie, but no immediate action was taken to carry out this work.

Durine 1960 session, the Western Australian Parliament passed the Broken Hill Propry Company's Integrated Steel Works Agreement Act ratifying an agreement bet the Government and the Company relating to the establishment of an integratcn and steel industry at Kwinana on the coast south of Fremantle. The Act mad operation of the agreement contingent upon the passage of legislation by the State Commonwealth Parliaments to provide for the financing, construction and comon before 31 December 1968 of a standard gauge railway between the works site at K na and the terminus of the Trans-Australian Railway at Kalgoorlie. Accordingly th mmonwealth Parliament passed the *Railway Agreement (Western Australia) Act* 196 ending to the State financial assistance for the project. The State Parliament approveis agreement by the *Railway Standardisation Agreement Act, 1961* and gave authorir the construction of the railway by means of the *Railways (Standard Gauge) Constru Act, 1961.* Work on route surveys was begun in 1961 and the construction of earth ks commenced on 5 November 1962. Basic planning and all major surveys requiret the project were completed during 1965. The 3 ft 6 in portion of the dual gauge e between Midland and Northam along the Avon River valley was commissioned general and passenger traffic on 13 February 1966. In October of the same year, age of grain on the standard gauge railway commenced between Merredin and thort of Fremantle and the first train load of iron ore from Koolyanobbing to Kwinawas hauled in April 1967. The standard gauge line from Kwinana to Kalgoorlie was li with the Trans-Australian Railway to Port Pirie (South Australia) on 3 August 1968, bling 'through' freight services to commence in November 1968.

I62, the opening of a new 4 ft 8½ in gauge railway between Melbourne (Victoria) and Ay, on the border between Victoria and New South Wales, completed the standard gaugk between Melbourne and South Brisbane (Queensland). Late in 1969 work was pleted on the last stage of a standard gauge connection between Sydney (New Soutales) and Perth and Fremantle, through Broken Hill (New South Wales), Port Pirieuth Australia) and Kalgoorlie. The length of this route, 'The Indian-Pacific' railwis 2,461 miles (Sydney to Perth). Regular services for freight began in January 1970d for passengers in March 1970.

ROADS AND ROAD TRAFFIC

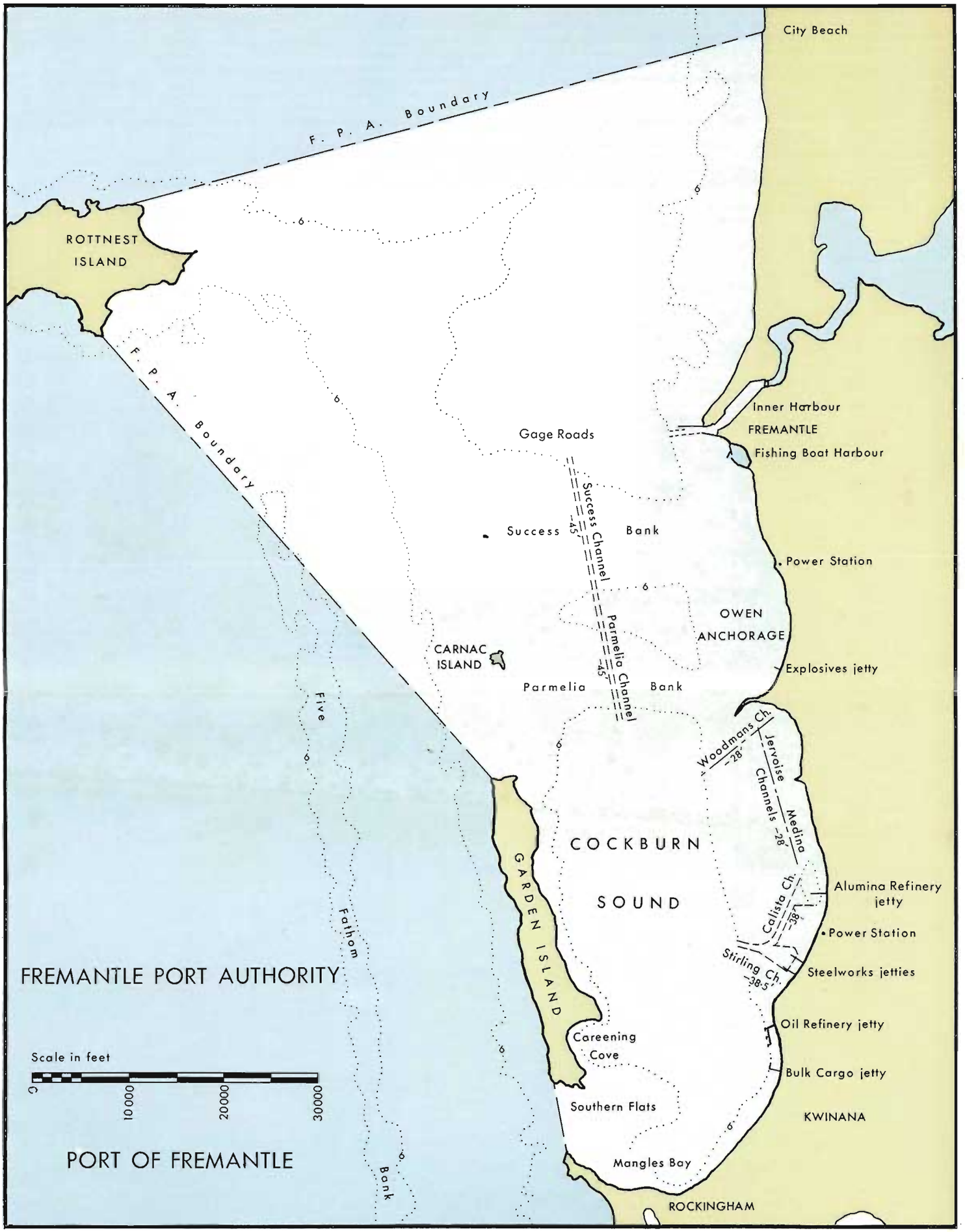
Woonnected with road construction and maintenance and associated projects in Wet Australia is undertaken by the State Government, through the Main Roads Dement, and by local government authorities, comprising City Councils, Town Cos and Shire Councils.

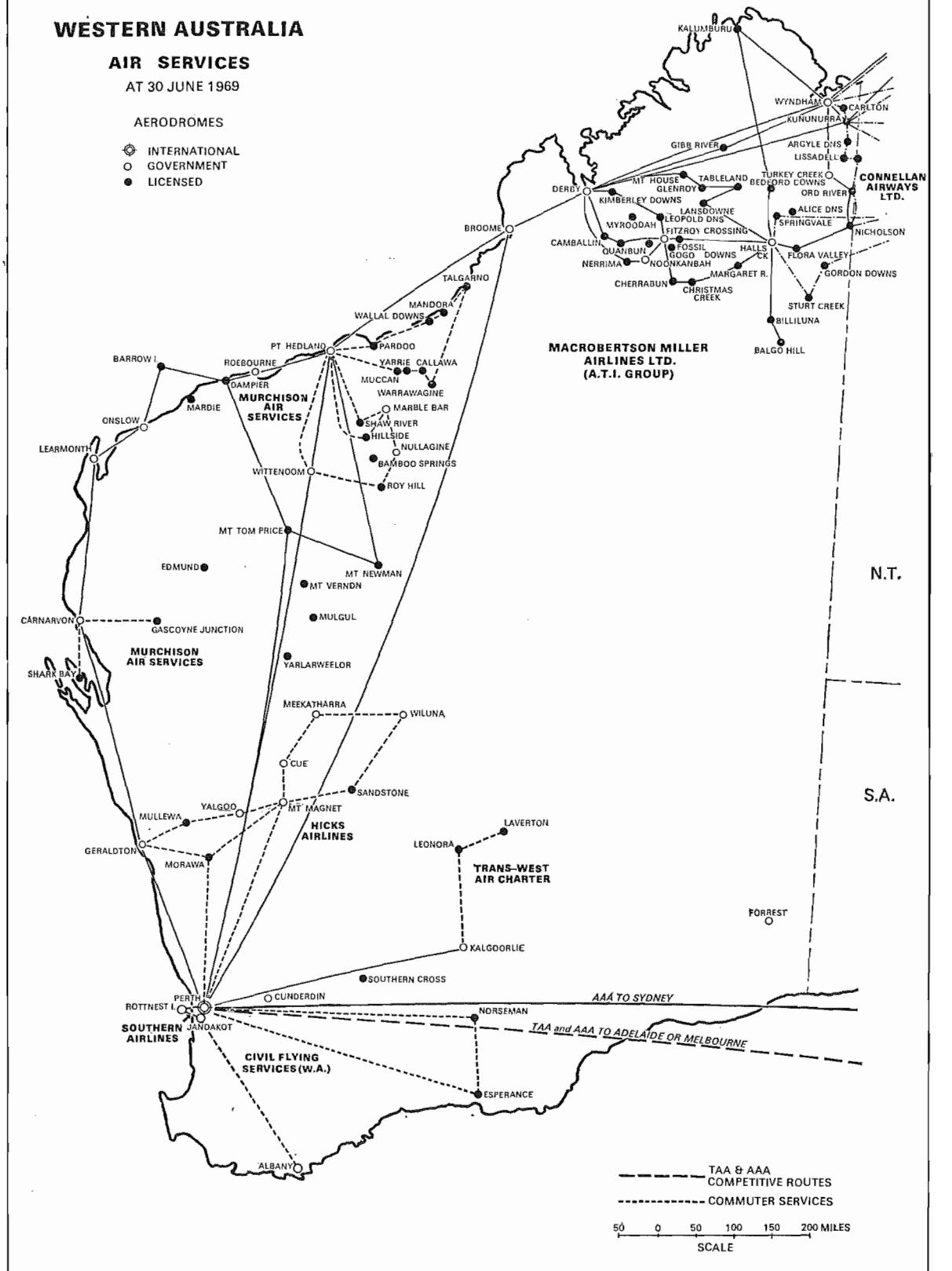
ıder the provisions of the Main Roads Act, the Main Roads Department was estihed in 1930 to replace the Main Roads Board originally constituted as a central roauthority in 1926. The Department operates under the *Main Roads Act, 1930-19*nd is administered by a Commissioner of Main Roads responsible to the Minister foorks. The Act makes provision for public roads in the categories of 'main' roads, 'colled-access' roads and 'developmental' roads. An additional category, that ofnportant secondary' roads, is used by the Department in determining its works prmme.

Main roads are those which provide communication between a large producing aeither actual or potential, and its market or nearest port or railway station ; betwtwo or more such areas; between large centres of population; or between the capital cnd a large producing area or a large centre of population. Controlled-access roads ahose which do not permit direct access from abutting property and may be entered cparted from only at certain selected road connections located at points which are ddered to serve best the traffic for which the controlled-access road was designed. plopmental roads are those which serve to develop an area or to increase its develop-t. Important secondary roads are those which, though originally classified as developtal, have come to be used consistently by through traffic and therefore warrant a ial allocation of funds by the Main Roads Department. The Act provides that, on

PORT OF FREMANTLE

In water area the port covers about 180 square miles and comprises an all weather Inner Harbour within the mouth of the Swan River and an extensive sheltered Outer Harbour in Cockburn Sound. The Inner Harbour consists of twenty land-backed berths at Victoria Quay and North Quay. Facilities of the Outer Harbour include a bulk cargo jetty, three tanker berths serving an adjacent oil refinery, two jetties serving an integrated iron and steel industry, a specially equipped berth serving an alumina refinery, and an isolated special berth for the handling of explosives.




WESTERN AUSTRALIA
AIR SERVICES
AT 30 JUNE 1969
AERODROMES
INTERNATIONAL
GOVERNMENT
LICENSED
KALUMBURU
WYNDHAM
CARLTON
KUNUNURRAH
GIBB RIVER
ARGYLE DNS
LISSADELL
DERBY
MT HOUSE
TABLELAND
GLENROY
TURKEY CREEK
BEDFORD DOWNS
ORD RIVER
CONNELLAN AIRWAYS LTD.
KIMBERLEY DOWNS
LANSDOWNE
LEOPOLD DNS
ALICE DNS
SPRINGVALE
NICHOLSON
BROOME
MYROODAH
FITZROY CROSSING
CAMBALLIN
QUANBUN
FOSSIL
GOGO DOWNS
HALLS CK
FLORA VALLEY
NERRIMA
NOONKANBAH
GORDON DOWNS
MARGARET R.
CHERRABUN
CHRISTMAS CREEK
STURT CREEK
BILLILUNA
BALGO HILL
TALGARNO
MANDORA
WALLAL DOWNS
PT HEDLAND
PARDOO
MACROBERTSON MILLER AIRLINES LTD. (A.T.I. GROUP)
BARROW I
ROEBOURNE
YARRIE
CALLAWA
MUCCAN
WARRAWAGINE
DAMPIER
MARDIE
MURCHISON AIR SERVICES
MARBLE BAR
ONSLOW
SHAW RIVER
HILLSIDE
NULLAGINE
LEARMONTH
BAMBOO SPRINGS
WITTENOOM
ROY HILL
MT TOM PRICE
EDMUND
MT NEWMAN
MT VERNON
N.T.
CARNARVON
GASCOYNE JUNCTION
MULGUL
MURCHISON AIR SERVICES
SHARK BAY
YARLARWEELOR
MEEKATHARRA
WILUNA
CUE
SANDSTONE
S.A.
YALGOO
MT MAGNET
MULLEWA
HICKS AIRLINES
LAVERTON
LEONORA
GERALDTON
MORAWA
TRANS-WEST AIR CHARTER
FORREST
KALGOORLIE
SOUTHERN CROSS
PERTH
CUNDERDIN
AAA TO SYDNEY
ROTTNEST I.
NORSEMAN
SOUTHERN AIRLINES
JANDAKOT
TAA and AAA TO ADELAIDE OR MELBOURNE
CIVIL FLYING SERVICES (W.A.)
ESPERANCE
ALBANY
TAA & AAA COMPETITIVE ROUTES
COMMUTER SERVICES
50 0 50 100 150 200 MILES
SCALE

the recommendation of the Commissioner, any road may be proclaimed a main road and any main road may cease to be a main road.

The construction and maintenance of main roads and controlled-access roads are the responsibility of the Main Roads Department. The Department also makes substantial financial provision for the construction and maintenance of important secondary roads and for the construction of developmental roads. The construction and maintenance of strategic roads and roads of access to Commonwealth property is undertaken by the Department for the Commonwealth Government.

Within its own district, each local government authority is responsible for the provision and upkeep of roads other than those provided by the Main Roads Department. In addition, the local authority is required by the Main Roads Act to maintain any developmental road situated in its district.

The following table shows the length of public roads of each type of surface, and of unsurfaced public roads, at 30 June 1967, classified according to Statistical Division (see map of Western Australia following Index). Included in the total are 3,428 miles of main roads, 7 miles of controlled-access road, 7,958 miles of important secondary roads and 43,930 miles of developmental roads.

ROADS OPEN FOR GENERAL TRAFFIC AT 30 JUNE 1967
MILEAGE CLASSIFIED ACCORDING TO STATISTICAL DIVISION

Statistical Division	Paved surface			Unpaved			Grand total
	Bitumen (a)	Gravel and other surfaces	Total	Formed (b)	Unformed (c)	Total	
Perth Statistical Division	3,386	711	4,097	156	579	735	4,832
Other Divisions—							
South-West	2,133	3,880	6,013	4,038	5,769	9,807	15,820
Southern Agricultural	1,628	3,455	5,083	6,787	2,444	9,231	14,314
Central Agricultural	2,967	6,372	9,339	8,984	(d) 3,604	12,588	(e) 21,927
Northern Agricultural	1,603	4,745	6,348	6,051	3,296	9,347	15,695
Eastern Goldfields	1,237	2,277	3,514	5,063	5,167	10,230	13,744
Central	221	348	569	6,490	(d) 1,642	8,132	(e) 8,701
North-West	220	164	384	3,471	(d) 1,361	4,832	(e) 5,216
Pilbara	90	526	616	2,190	(d) 640	2,830	(e) 3,446
Kimberley	321	715	1,036	2,516	1,860	4,376	5,412
Total	10,420	22,482	32,902	45,590	(d) 25,783	71,373	(e) 104,275
WESTERN AUSTRALIA	13,806	23,193	36,999	45,746	(d) 26,362	72,108	(e) 109,107

(a) Includes short lengths of concrete surface aggregating 5 miles, 33 chains. (b) Comprises roads, mainly of natural surfaces, formed but not metalled or otherwise prepared. (c) Roads unprepared except for certain clearing. (d) Particulars are incomplete as information for some Shires is not available. (e) See note (d).

Vehicle Registration, Licences and Traffic Control

The *Traffic Act, 1919-1969* provides for the registration of vehicles, the issue of licences and the regulation of traffic throughout the State, and prescribes the fees payable in respect of the several types of licences required.

In Western Australia there is no single authority responsible for the licensing of vehicles. The Traffic Branch of the Police Department licenses vehicles in the Metropolitan Traffic Area, which at 31 December 1968 comprised the Cities of Perth, Fremantle, Melville, Nedlands, South Perth and Subiaco; the Towns of Claremont, Cottesloe, East Fremantle, Midland and Mosman Park; the Shires of Armadale-Kelmscott, Bassendean, Bayswater, Belmont, Canning, Cockburn, Gosnells, Kwinana, Peppermint Grove, Perth and Rockingham; and parts of the Shires of Mundaring and Swan-Guildford. Outside the Metropolitan Traffic Area each local government authority is responsible for the licensing of vehicles in its own district. (From 1 January 1969 the licensing of vehicles in the Shires of Broome and West Kimberley became the responsibility of the Police Department; see further reference on page 452.)

The Traffic Act provides that the issue of drivers' and riders' licences and used car dealers' licences throughout the State shall be the function of the Police Department.

The following table contains particulars of the number of motor vehicles, classified according to type, on the register at 30 June in each of the years from 1964 to 1968. It also shows the net amounts collected from motor vehicle registrations and fees in the Metropolitan Traffic Area and in the rest of the State, as well as revenue from drivers', riders' and similar licences and fees throughout the State. Vehicles owned by the Commonwealth Government are not licensed under the Traffic Act and are excluded from the figures shown. At 30 June 1968 there were in Western Australia 1,851 Commonwealth Government-owned vehicles (other than those of the defence services) listed with the Commonwealth Registry, Canberra. They comprised 483 motor cars and station wagons, 1,320 utilities, vans and trucks, 19 omnibuses and 29 motor cycles.

MOTOR VEHICLES ON REGISTER AND NET FEES RECEIVED

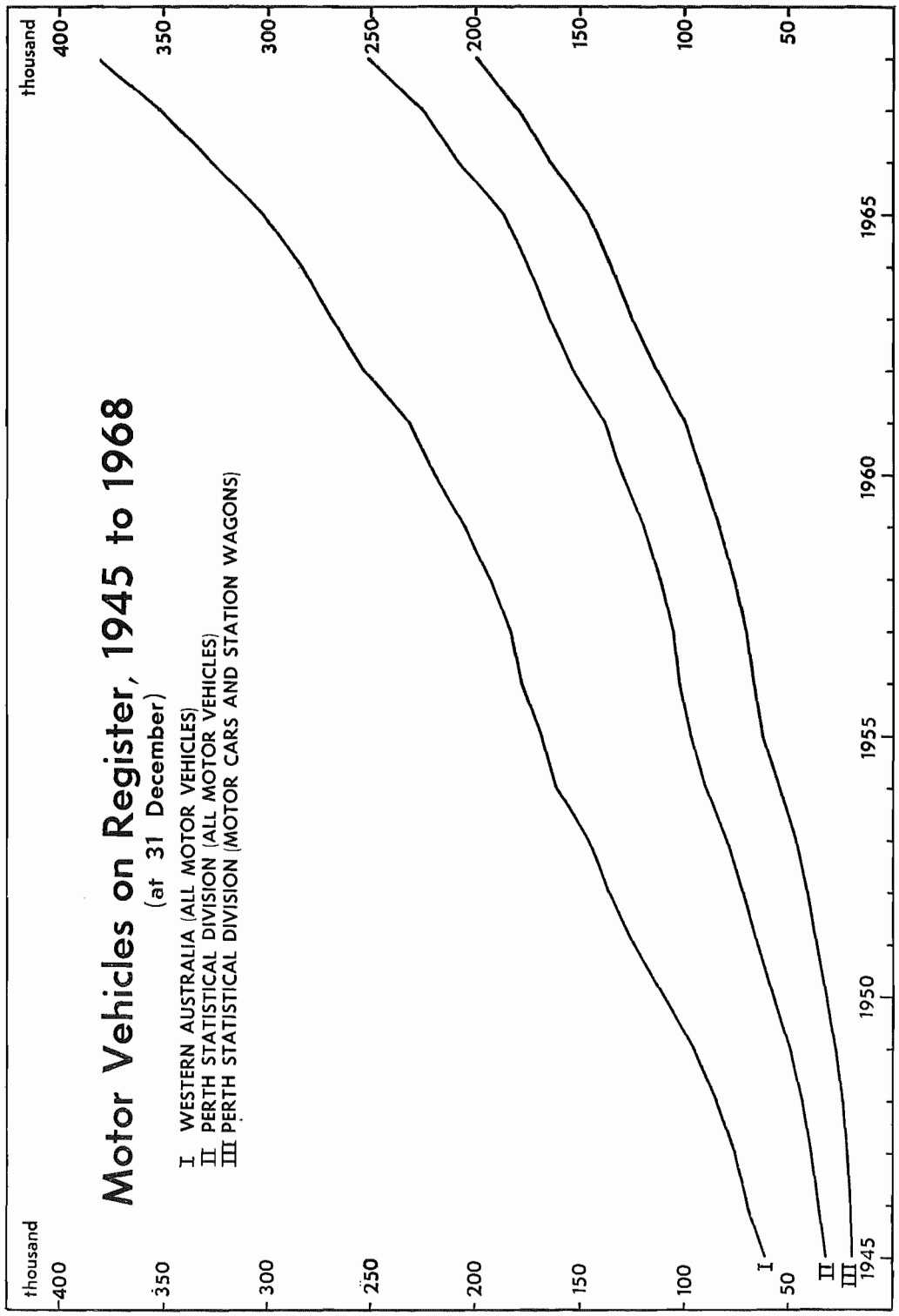
Particulars		1963–64	1964–65	1965–66	1966–67	1967–68
METROPOLITAN TRAFFIC AREA						
Number on register at end of year (*a*)—						
Motor cars and station wagons		127,393	136,719	148,505	166,032	183,227
Utilities, vans, trucks and omnibuses		29,419	30,025	32,483	35,595	38,488
Motor cycles (including motor scooters)		7,403	6,388	6,030	6,194	6,523
Total		164,215	173,132	187,018	207,821	228,238
Revenue from registrations and fees	$'000	4,213	4,591	5,464	6,224	6,655
REST OF STATE						
Number on register at end of year (*a*)—						
Motor cars and station wagons		61,585	65,893	70,952	*74,057	79,842
Utilities, vans, trucks and omnibuses		47,701	48,238	50,780	*50,803	52,736
Motor cycles (including motor scooters)		3,041	2,844	2,731	*2,668	3,080
Total		112,327	116,975	124,463	*127,528	135,658
Revenue from registrations and fees	$'000	3,255	3,491	4,146	4,660	4,852
WESTERN AUSTRALIA						
Number on register at end of year (*a*)—						
Motor cars and station wagons		188,978	202,612	219,457	*240,089	263,069
Utilities, vans, trucks and omnibuses		77,120	78,263	83,263	*86,398	91,224
Motor cycles (including motor scooters)		10,444	9,232	8,761	*8,862	9,603
Total		276,542	290,107	311,481	*335,349	363,896
Revenue from—						
Motor vehicle registrations and fees (*b*)	$'000	7,467	8,081	9,610	10,884	11,507
Drivers', riders', etc. licences and fees	$'000	741	785	1,059	*1,239	1,344

(*a*) Excludes vehicles owned by the Commonwealth Government. Excludes also such vehicles as tractors, trailers and industrial (on site) equipment. (*b*) For further details see table on page 270. *Revised.

Traffic control in general is exercised by the Police Department in the Metropolitan Traffic Area, except for certain powers in relation to the parking of vehicles conferred on the Perth City Council by the *City of Perth Parking Facilities Act, 1956-1969*. Outside the Metropolitan Traffic Area, control is vested by the Traffic Act in the local government authorities, each of which is required by the Act to appoint at least one traffic inspector for its district.

In June 1965, a Departmental Committee was appointed by the State Government to investigate country traffic control, and to consider and report upon the necessity for the establishment of a single traffic authority throughout the State responsible for traffic control only; licensing of vehicles only; or both functions.

The majority of the committee, in a report which was presented in April 1966, recommended that ' the Police Department be established as the sole authority responsible for the enforcement of the Traffic Act throughout the State '. A further majority recommendation was to the effect that ' licensing of vehicles throughout the State be made


Motor Vehicles on Register, 1945 to 1968
(at 31 December)
I WESTERN AUSTRALIA (ALL MOTOR VEHICLES)
II PERTH STATISTICAL DIVISION (ALL MOTOR VEHICLES)
III PERTH STATISTICAL DIVISION (MOTOR CARS AND STATION WAGONS)
thousand
400
350
300
250
200
150
100
50
1945
1950
1955
1960
1965
I
II
III

the responsibility of a single authority and that the Commissioner of Police is the appropriate authority to assume this responsibility.' Although the recommendations were not adopted by the Government, it was decided that a local authority exercising vehicle licensing and traffic control powers in any territory outside the Metropolitan Traffic Area might voluntarily transfer these powers to the Police Department. Legislative authority for any such transfer is contained in the *Traffic Act Amendment Act (No. 2), 1969* which provides that if a local authority, by resolution of its Council, so requires, the Minister may, by notice in the *Government Gazette*, confer on the Commissioner of Police all the powers and duties imposed on the local authority by the Traffic Act, other than those relating to road construction. The Shire Councils of Broome and West Kimberley were the first local government authorities to avail themselves of this provision, and the transfer of powers became effective from 1 January 1969.

Finance for Roads

The principal source of revenue for road works in Western Australia is in the form of Commonwealth financial assistance authorised by a series of Acts, the first of which, the Main Roads Development Act, was passed in 1923. The legislation currently in operation for the provision of grants to the States for or in connection with roads is the *Commonwealth Aid Roads Act* 1969.

The *Commonwealth Aid Roads Act* 1969 authorises the Commonwealth to grant an amount of $1,252·05 million as financial assistance to the States in relation to roads during the five-year period from 1 July 1969 to 30 June 1974. The assistance comprises a 'principal grant' of $1,200 million and a 'supplementary grant' of $52·05 million. The principal grant is apportioned among the six States and must be spent on specified classes of roads and on road planning and research. Moneys are provided from the supplementary grant to the States of Western Australia, South Australia and Tasmania, and are available for the construction and maintenance of roads generally. The annual amounts payable from the principal grant increase from $180 million in 1969-70 to $310 million in 1973-74, while those payable from the supplementary grant decrease from $13 million to $6·80 million.

Western Australia's share of the principal grant of $1,200 million is $159·6 million, of which $62·41 million is required to be spent on the construction of urban arterial roads, $23·91 million on the construction of rural arterial roads, $70·88 million on the construction and maintenance of other rural roads, and $2·40 million on road planning and research. Western Australia's share of the supplementary grant of $52·05 million is $40·80 million.

Payment of moneys provided by the *Commonwealth Aid Roads Act* 1969 is contingent on a State's expenditure on roads from its own resources. To qualify for the full amount of the grant a State must increase its annual expenditure on roads in proportion to the increase in the number of motor vehicles on the register in that State.

The *Traffic Act Amendment Act (No. 2), 1969* and the *Main Roads Act Amendment Act, 1969*, both of which came into operation on 1 July 1969, establish a new system for the receipt and disbursement of moneys to be spent on roads. Other Western Australian Acts which provide revenue for road purposes are the *Road Maintenance (Contribution) Act, 1965* (see page 267) and the *Road and Air Transport Commission Act, 1966-1968* (see pages 267 and 459).

The *Traffic Act, 1919-1969* requires that there shall be paid to the Main Roads Trust Account, maintained under the Main Roads Act, the motor vehicle licence fees received by local government authorities, or by the Commissioner of Police as the licensing authority in the Metropolitan Traffic Area (and other areas as prescribed). Provision is made for the retention by these authorities of specified amounts to cover costs of administration in respect of motor vehicle licensing. The Commissioner of Police is also required to pay into the Account one-half of the fees which he receives on the issue or renewal of drivers' licences.

The *Main Roads Act Amendment Act, 1969* provides that there shall be paid to the Main Roads Trust Account moneys received from the Commonwealth as financial assistance in relation to roads; amounts payable under the provisions of the Traffic Act or any other Act; moneys appropriated by the Parliament; and payments by local government authorities in respect of permanent works and the maintenance of main roads and developmental roads. Moneys standing to the credit of the Account are used to meet expenditure by the Commissioner of Main Roads on the administration of the Act and the construction of roads and associated works, and to provide funds to local government authorities for roads and road works.

The Act provides that every local government authority shall be paid from the Main Roads Trust Account an annual grant calculated by applying a percentage increase to a 'base grant' specified for each authority. An additional grant is payable to any local government authority whose annual expenditure on road construction from its own resources exceeds a prescribed amount. The Act requires that one-half of the moneys received by a local authority in the form of grants shall be spent on the construction of urban arterial roads where its district is within the Perth Statistical Division, and on the construction of rural roads other than arterial rural roads where its district is outside the Division. The remaining moneys are to be applied to the construction and maintenance of roads generally.

Grants payable from the Main Roads Trust Account constitute the principal revenue available to local government authorities for road construction and maintenance. Other moneys may be provided from the ordinary revenue of a local authority or from loans raised for road purposes.

Beef Cattle Roads. In addition to grants made under the Commonwealth Aid Roads legislation, the Commonwealth Government provided financial assistance, during the six-year period ended 30 June 1967, in terms of a series of Western Australia Grant (Beef Cattle Roads) Acts, the first of which was passed in 1961. The aim of this assistance was to improve the standard of roads used for the transport of beef cattle in the Kimberley. During the period of the programme almost $17 million was spent, the State Government matching Commonwealth contributions on a dollar for dollar basis. An extension of Commonwealth financial assistance is authorised by the *States Grants (Beef Cattle Roads) Act* 1968. The Act provides for a contribution of up to $9·5 million as Western Australia's share of funds for a further programme of construction during a period of seven years commencing on 1 July 1967. The grants are again conditional upon equal expenditure by the State.

ROAD PASSENGER TRANSPORT SERVICES

Motor omnibus services (as well as a passenger ferry service) in the metropolitan area are operated by the Metropolitan (Perth) Passenger Transport Trust, constituted under the *Metropolitan (Perth) Passenger Transport Trust Act, 1957-1966*. For the purposes of the Act, the metropolitan area is defined by a proclamation of 1 May 1958 as being 'all the land within a circle having a radius of 30 miles from the Perth Town Hall' and in addition, an area bounded by the South Western Highway and the ocean, extending southward to an east-west line one mile south of the town of Pinjarra. The trolley-bus services formerly operated by the Trust were discontinued on 29 August 1969.

Road transport outside the metropolitan area is provided by the railways road services (see pages 443-4), which cover long-distance routes between Perth and country centres; by the Eastern Goldfields Transport Board, which serves the Kalgoorlie-Boulder urban area under an agreement with the Kalgoorlie and Boulder local government authorities; and by privately-owned omnibus services, which operate mainly in and around country centres.

In certain country areas, children are taken to and from school by motor bus at government expense. In 1968 the cost to the Government of school transport services was $2,678,830. The number of omnibuses engaged was 675. They travelled a daily total of 46,169 miles and carried 23,805 children daily.

Details of the operations of omnibus services in Western Australia during the five years ended 30 June 1968 are given in the following table.

OMNIBUS SERVICES (*a*)

Year	Route miles operated	Omnibuses at end of year	Omnibus miles run '000	Passengers carried '000	Employees at end of year	Operating revenues (*b*) $'000	Operating expenses $'000	Depreciation $'000	Interest $'000
METROPOLITAN (PERTH) PASSENGER TRANSPORT TRUST (*c*) (*d*)									
1963–64	554	573	15,761	49,899	1,626	5,143	5,147	485	365
1964–65	575	590	16,519	49,967	1,685	5,169	5,386	584	386
1965–66	614	626	17,893	52,268	1,759	5,622	6,095	601	408
1966–67	626	653	18,708	53,126	1,764	6,676	6,529	581	426
1967–68	642	681	19,031	52,929	1,753	7,012	6,734	630	452
WESTERN AUSTRALIAN GOVERNMENT RAILWAYS									
1963–64	3,256	50	1,671	251	130	387	427	39	14
1964–65	3,732	65	1,949	260	140	491	495	52	23
1965–66	3,730	60	2,061	255	140	529	580	60	26
1966–67	3,572	64	1,945	237	137	542	597	75	33
1967–68	3,958	61	1,875	228	142	549	610	76	34
EASTERN GOLDFIELDS TRANSPORT BOARD									
1963–64	20	12	162	757	14	52	54	8	....
1964–65	14	12	171	675	13	52	54	8	....
1965–66	15	12	171	656	14	50	59	3	....
1966–67	15	12	185	684	14	57	60	5	....
1967–68	15	15	232	734	18	69	78	9	(*e*)
PRIVATE									
1963–64	1,080	54	978	1,425	67	236	242	39	4
1964–65	616	37	791	1,446	45	159	155	20	3
1965–66	628	37	752	1,379	48	148	155	15	1
1966–67	4,223	41	847	1,431	51	238	233	30	3
1967–68	3,895	35	1,231	1,162	48	382	390	30	4

(*a*) Excludes school transport services and tourist services. (*b*) Passenger fares and subsidies only. (*c*) For passenger ferry operations, see page 457. (*d*) Includes operations of trolley-buses. (*e*) Less than $500.

MOTOR VEHICLE USAGE

Some information on the usage of motor vehicles was obtained in a sample survey conducted throughout Australia by the Commonwealth Bureau of Census and Statistics in November 1963. The sample comprised 19,676 vehicles, of which 2,742 were cars or station wagons. Because the survey results are based on a sample, they are subject to sampling variability and may therefore differ somewhat from the results that would have been obtained from a complete enumeration of all registered motor vehicles. Details, including particulars relating to goods-carrying vehicles, appear in *Survey of Motor Vehicle Usage*, 1963—*Preliminary Bulletin: States and Territories* published by the Commonwealth Statistician, Canberra.

ROAD TRAFFIC ACCIDENTS

Statistics of road traffic accidents are prepared from information concerning accidents in public thoroughfares, as reported to officers of the Police Department in the Metropolitan Traffic Area and, outside that Area, to traffic inspectors employed by local government authorities and/or police officers. Accidents involving casualties are those which result in the death of any person within a period of thirty days after the accident, or in which any person suffers bodily injury to an extent requiring surgical or medical treatment.

The following table shows, for each year during the period 1964 to 1968, the number of accidents involving casualties which occurred in Western Australia and in Australia.

The number of persons injured per 100,000 of mean population was higher in Western Australia than the corresponding Australian figure in each year except 1965 when the rates were identical. The death rate in 1964 was 27 per 100,000 of mean population for both Western Australia and Australia but in subsequent years the rate was higher for this State than for Australia as a whole.

ROAD TRAFFIC ACCIDENTS AND CASUALTIES
WESTERN AUSTRALIA AND AUSTRALIA

Particulars	1964	1965	1966	1967	1968
WESTERN AUSTRALIA					
Accidents involving casualties	4,062	4,170	4,346	4,659	4,708
Number of persons killed—					
Total	222	252	253	256	320
Per 100,000 of mean population (*a*)	27	30	30	29	35
Number of persons injured—					
Total	5,450	5,638	5,997	6,426	6,553
Per 100,000 of mean population (*a*)	674	682	706	733	721
AUSTRALIA					
Accidents involving casualties	53,554	55,932	55,538	57,253	58,759
Number of persons killed—					
Total	2,966	3,164	3,242	3,166	3,382
Per 100,000 of mean population (*a*)	27	28	28	27	28
Number of persons injured—					
Total	74 258	77,723	77,837	80,021	82,210
Per 100,000 of mean population (*a*)	665	682	671	677	683

(*a*) Figures for 1966 and later are subject to revision after the 1971 Population Census.

In the next table road traffic accident casualties which occurred in Western Australia during the five years ended 31 December 1968 are classified according to type of road user. The figures shown in the category 'Other' refer to such persons as bystanders, train drivers, riders of horses and drivers of animal-drawn vehicles.

ROAD TRAFFIC ACCIDENTS—CASUALTIES ACCORDING TO TYPE OF ROAD USER

Type of road user	1964	1965	1966	1967	1968
PERSONS KILLED					
Drivers of motor vehicles	91	97	101	113	143
Motor cyclists (*a*)	9	12	4	6	7
Pedal cyclists	8	13	9	4	8
Passengers—					
Pillion	2	3	....	....	1
Other	69	76	88	75	105
Pedestrians	43	51	51	58	56
Other	....	....	....	....	....
Total	222	252	253	256	320
PERSONS INJURED					
Drivers of motor vehicles	1,968	2,092	2,351	2,680	2,680
Motor cyclists (*a*)	415	371	342	329	328
Pedal cyclists	372	357	344	339	275
Passengers—					
Pillion	83	68	44	45	54
Other	1,927	1,996	2,196	2,263	2,431
Pedestrians	675	751	714	763	781
Other	10	3	6	7	4
Total	5,450	5,638	5,997	6,426	6,553

(*a*) Includes riders of motor scooters.

The following table gives a classification of casualties according to the ages of persons killed and persons injured during each year of the period from 1964 to 1968.

ROAD TRAFFIC ACCIDENTS—CASUALTIES CLASSIFIED ACCORDING TO AGE

Year	Age last birthday (years)										Total
	0–4	5–6	7–16	17–20	21–29	30–39	40–49	50–59	60 and over	Not stated	
PERSONS KILLED											
1964	6	7	21	34	34	21	34	30	34	1	222
1965	17	5	13	35	41	31	24	32	54	....	252
1966	9	1	29	34	52	25	19	47	37	....	253
1967	3	4	22	48	43	29	27	26	52	2	256
1968	11	6	29	54	75	35	29	27	51	3	320
PERSONS INJURED											
1964	170	141	794	1,146	1,005	542	550	417	350	335	5,450
1965	248	119	751	1,182	1,016	612	486	415	389	420	5,638
1966	209	130	791	1,342	1,033	618	545	460	405	464	5,997
1967	234	121	792	1,344	1,185	627	603	482	457	581	6,426
1968	233	142	759	1,364	1,276	676	561	452	409	681	6,553

Road traffic accidents during the years ended 31 December 1967 and 1968 are classified in the next table according to nature of accident and type of vehicle involved. It should be noted that, as accidents (and casualties) may involve more than one type of vehicle and, in such cases, are classified to each type involved, it is not appropriate to derive totals by adding the figures shown in the second part of the table.

ROAD TRAFFIC ACCIDENTS
NATURE OF ACCIDENT AND TYPE OF VEHICLE INVOLVED

Nature of accident and type of vehicle involved	1967			1968		
	Accidents involving casualties	Casualties		Accidents involving casualties	Casualties	
		Persons killed	Persons injured		Persons killed	Persons injured
NATURE OF ACCIDENT						
Vehicle colliding with—						
Motor vehicle (moving)	2,413	94	3,646	2,477	121	3,807
Railway vehicle	14	7	15	9	2	11
Pedestrian	775	59	749	790	54	777
Stationary vehicle	134	1	180	121	1	170
Other fixed object	13	2	25	12	....	16
Animal or animal-drawn vehicle	12	....	22	14	2	17
Vehicle overturning or leaving road	1,190	90	1,670	1,182	129	1,648
Passenger accident	34	3	32	28	4	28
Other accidents	74	....	87	75	7	79
Total	4,659	256	6,426	4,708	320	6,553
TYPE OF VEHICLE INVOLVED (*a*)						
Motor vehicle—						
Car, other than taxi	3,903	199	5,554	3,986	241	5,719
Taxi	76	2	117	73	4	94
Van, utility, truck	1,168	84	1,610	1,084	99	1,513
Semi-trailer	39	6	45	47	6	59
Omnibus; trolley-bus	63	4	97	56	8	72
Motor cycle, motor scooter	374	7	420	357	8	404
Other	23	5	27	27	5	27
Pedal cycle	348	6	356	286	9	289

(*a*) See letterpress immediately preceding table

PASSENGER FERRY SERVICE

The Metropolitan (Perth) Passenger Transport Trust operates a passenger ferry service across the Swan River from Perth to South Perth. Particulars of private charter excursions are excluded from the figures in the following table, other than those which relate to operating revenues and expenses.

PASSENGER FERRY SERVICE

Year	Boats at end of year	Miles run (a)	Passengers carried (a)	Employees at end of year	Operating revenues	Operating expenses	Depreciation	Interest
					$	$	$	$
1963–64	4	22,262	184,556	8	23,896	30,538	1,652	330
1964–65	5	22,064	201,336	8	30,636	33,900	1,796	660
1965–66	5	21,588	238,273	9	34,200	39,407	493	540
1966–67	5	21,784	253,160	9	40,925	41,096	564	623
1967–68	5	22,308	311,888	9	47,778	47,974	964	814

(a) Excludes private charter operations.

AIR TRANSPORT

The supervision and control of civil air transport operations throughout Australia is the responsibility of the Department of Civil Aviation. Among its functions are the enforcement of safety regulations; the registration of aircraft and the issue of certificates of airworthiness; the licensing of members of air crews and of ground staffs; the provision, operation and maintenance of aeronautical communication systems and air navigation facilities; the authorisation of sites for aerodromes; the design, operation and maintenance of aerodromes; the establishment and operation of air traffic control services; the specification of the requisite meteorological services; the approval of fares, freight rates and time tables; and the licensing of air service operations and co-operation with State Government transport licensing authorities.

An extensive system of air services operates in Western Australia for the transport of passengers, freight and mails. Perth has an international airport which is used by overseas services between Australian and Singapore, Australia and the United Kingdom via Singapore and between Australia and South Africa. Perth is also the western terminus of interstate flights connecting the capital cities of Australia and is the base for a comprehensive airline network serving many inland centres as well as coastal towns in the south, the north-west and the north of the State. From some of these towns regular services operate over many hundreds of miles of route to sheep and cattle stations and to native missions. Some stations and towns in the Kimberley are linked with Darwin and Alice Springs in the Northern Territory. (The principal air routes being flown in or through Western Australia at 30 June 1969 are shown on the map of the State before page 449). In addition to these regular services there are facilities for charter flights. Some operators engage in work connected with the Royal Flying Doctor Service of Australia.

The principal function of the Royal Flying Doctor Service of Australia is to provide medical aid, dental care and air ambulance transport for residents, including aboriginal natives, in remote areas. Isolated townships, mining centres and sheep and cattle stations are usually equipped with two-way radio sets and, by this means, are linked with bases where doctors are available for radio consultation in the event of sickness or accident. In serious cases a doctor flies to the patient, who may then be flown to hospital for treatment. The Service provides first-aid books, as well as standard medicine chests with directions for the use of the drugs and medical supplies which they contain and, where necessary, the doctor gives additional instruction by radio.

The radio network of the Royal Flying Doctor Service is regularly used in the work of Schools of the Air conducted by the Education Department, and also for the transmission and receipt of telegrams. In addition, it may be used, as the need arises, in connection with flood relief, in searching for lost parties and in co-ordinating movements of livestock.

The Service is financed by grants from the Commonwealth and State Governments and by private donations.

Airport Operations. The following table, compiled from information published by the Department of Civil Aviation, provides a summary of operations at airports in Western Australia during each of the years 1966 to 1968. The figures refer only to regular public transport operations on scheduled services and do not include charter operations.

CIVIL AVIATION—TRAFFIC HANDLED AND AIRCRAFT MOVEMENTS

Airport	Passengers (*a*)			Freight (short tons) (*b*)			Aircraft movements (*c*)		
	1966	1967	1968	1966	1967	1968	1966	1967	1968
Albany	3,622	3,354	2,529	13	15	11	422	394	290
Barrow Island	2,223	4,554	3,526	80	154	110	748	1,014	981
Broome	6,071	6,448	7,221	178	215	238	1,572	1,806	2,044
Carnarvon	10,040	8,891	6,951	195	209	181	2,607	2,303	1,412
Dampier	2,937	9,946	12,901	56	216	312	604	1,328	1,322
Derby	12,644	14,152	18,586	892	747	938	2,100	2,099	2,584
Esperance	2,555	2,889	2,757	50	61	81	302	314	294
Geraldton	16,353	17,943	19,372	53	103	101	2,929	2,780	2,455
Kalgoorlie	4,517	6,409	9,828	125	159	215	719	702	757
Kununurra	4,583	3,939	5,277	286	219	260	848	603	722
Learmonth	12,695	8,685	5,428	187	204	112	1,182	1,089	1,329
Meekatharra	1,877	2,277	1,851	60	77	57	1,680	1,886	1,486
Onslow	2,960	3,948	2,480	89	98	71	1,286	1,436	1,026
Perth—									
Internal (*d*)	270,119	293,838	339,883	6,537	6,889	8,311	7,973	8,234	8,962
International	25,818	35,639	49,085	671	575	729	1,195	1,838	1,930
Port Hedland	16,785	19,580	37,468	608	846	1,468	2,824	2,814	3,448
Roebourne	2,499	1,714	4,174	91	52	129	712	602	699
Tom Price	4,044	4,276	8,089	77	73	179	568	692	862
Wittenoom	4,494	1,940	1,794	115	65	60	2,014	1,372	930
Wyndham	4,995	4,370	5,139	336	305	392	1,273	1,146	1,111

(*a*) Total of embarkations and disembarkations. (*b*) Total of freight loaded and unloaded. Short ton = 2,000 lb. (*c*) Total of arrivals and departures. (*d*) Interstate and intrastate.

Casualty Accidents. The following table shows the number of accidents involving civil aircraft which resulted in death or serious injury. The statistics relate to the following classes of operation: regular public transport; charter flights; aerial agriculture; training; other aerial work; private; and gliding.

CIVIL AVIATION—ACCIDENTS INVOLVING CASUALTIES (*a*)

Particulars	1964–65	1965–66	1966–67	1967–68	1968–69
WESTERN AUSTRALIA					
Number of—					
Accidents (*a*)	1	4	3	2	3
Persons killed	1	2	3	2	(*b*) 29
Persons seriously injured	....	3	4	1	2
AUSTRALIA					
Number of—					
Accidents (*a*)	17	37	38	36	17
Persons killed	15	29	66	47	(*b*) 47
Persons seriously injured	7	28	24	29	20

(*a*) Accidents involving civil aircraft which resulted in death or serious injury. Excludes parachutists killed on contact with earth after an uninterrupted fall. Excludes accidents outside Australia involving aircraft on the Australian register. (*b*) Includes 26 persons killed in one accident which occurred on 31 December 1968.

TRANSPORT CO-ORDINATION

State Transport Co-ordination Act

The *State Transport Co-ordination Act, 1966*, which came into operation on 19 June 1967, repeals the *State Transport Co-ordination Act, 1933-1961*. The Act provides for the appointment of a Director General of Transport, a Transport Advisory Council and a Transport Users' Board.

The duties of the Director General are to recommend to the Minister transport policy or changes in transport policy and measures for achieving policy objectives and the co-ordination of the various forms of transport service; to implement such policies and measures; to provide for research in transport planning and operation and in the economics of every form of transport; to co-ordinate capital works programmes for public transport services; to inquire into existing transport services; to recommend the provision of road transport services; to examine and report on any proposal for the construction of a new railway; to recommend the closure or partial suspension of any transport service, including a railway; and to advise the Minister on the administration of specified Acts relating to transport.

The Transport Advisory Council comprises the Director General of Transport (as Chairman), the Commissioner of Railways, the Commissioner of Main Roads, the Commissioner of Transport, the Chairman of the Metropolitan (Perth) Passenger Transport Trust, the Chairman of the Western Australian Coastal Shipping Commission, a representative of the West Australian Road Transport Association, and a representative of operators of regular air transport services. The duties of the Council are to formulate proposals in respect of, and make recommendations on, any matter referred to it by the Minister or the Director General of Transport, or that it may bring forward of its own motion.

The Transport Users' Board consists of the Director General of Transport (as Chairman) and four persons appointed by the Governor on the nomination of the Minister. These four members must be persons who, in the opinion of the Minister, are capable of assessing the financial and economic effect on transport users of any proposed or existing transport policy, two of them being persons particularly versed in the transport needs of rural industries. The Transport Users' Board is charged with the duty of considering and, where it so resolves, of making recommendations on, any matter affecting a transport service operating in the State, or concerning the lack or inadequacy of a transport service.

Road and Air Transport Commission Act

The *Road and Air Transport Commission Act, 1966-1968* provides for the appointment of a Commissioner of Transport. Under the direction of the Minister, the Commissioner is required to call tenders for the provision of road transport where, in the opinion of the Minister, the requirements of a district are not adequately served by any form of transport; to administer and direct the payment of such subsidies with respect to the provision of transport as may be authorised pursuant to the Act; and to consider and determine all applications for licences in respect of public vehicles. In regard to such licences the Commissioner may specify any particular conditions concerning the granting or holding of a licence, and may determine, in respect of any particular licence or group of licences, the conditions that shall be imposed on the granting and holding of such licences.

The public vehicles licensed by the Commissioner are omnibuses (other than those operated by the Metropolitan (Perth) Passenger Transport Trust), commercial goods vehicles, and aircraft.

In the licensing of omnibuses the Commissioner is empowered to prescribe the routes to be operated, the stopping places at which passengers may be picked up or set down, the fares to be charged, the timetables to be observed and the maximum number of passengers to be carried at any one time on any vehicle. The Commissioner may impose such other conditions as he thinks proper in the public interest.

All commercial goods vehicles operating on public roads are required to be licensed, except those which operate solely in the area within a radius of twenty miles from the General Post Office, Perth, or within a radius of twenty miles from the owner's place of business (or, where such place of business is situated more than forty miles from the General Post Office, Perth, within a radius of twenty-five miles). Exemptions from licensing provisions also apply to vehicles used for the transport of specified types of goods, mainly primary produce including forest products, minerals and livestock, or for the transport of goods within particular areas or between particular points.

Aircraft licences issued by the Commissioner relate to regular services and charter flights. Aircraft exempted from the licensing provisions of the Act are those operated solely in connection with the Royal Flying Doctor Service or in the course of aerial spraying, crop dusting, seed sowing, fertiliser distribution, photography, geophysical surveying, dingo baiting or whale or fish spotting.

Financial transactions are recorded in a Transport Commission Fund account as required by the Act. The principal revenues of the Fund are receipts from licence and permit fees and amounts received from the Treasury for distribution in the form of subsidy to transport operators and others in certain areas. The expenditure from the Fund includes amounts necessary to meet administration costs, disbursements to the Main Roads Department and to local government authorities for the maintenance and improvement of roads, moneys required to be held in trust for the provision and maintenance of landing grounds, and the payment of subsidies. Subsidies are paid principally on the cartage of grain and fertilisers, but also on the air transport of perishable goods to remote parts of the State and on travel, mainly by air, by students normally resident in those areas.

Taxi-cars (Co-ordination and Control) Act

The *Taxi-cars (Co-ordination and Control) Act, 1963-1968* constitutes a Taxi Control Board of seven members to provide for the co-ordination and control of taxi-cars and the registration and conduct of taxi-car drivers in the Metropolitan Traffic Area and such other areas as may be declared. The Act provides that the Board shall consist of the Commissioner of Transport (as Chairman); a member of the police force appointed by the Commissioner of Police; and five persons, appointed by the Governor, comprising one nominated by the Local Government Association of Western Australia to represent the interests of local authorities; one nominated by the W.A. Taxi Operators' Association; two who are taxi-car owners or operators and who are elected by taxi-car owners and operators; and one nominated by the Metropolitan (Perth) Passenger Transport Trust.

The principal functions of the Board are the formulation of schemes for the co-ordination and control of taxis; the determination of the number and kind of taxis to be licensed; the issue of licences; the determination of fares and other charges; the supervision of the operation of taxis and the regulation of stands; the registration of, and the control of the conduct and dress of, drivers; and the enforcement of regulations made under the Act.

It is provided that the number of taxis that may be licensed to operate within the Metropolitan Traffic Area shall not at any time exceed one for every 700, or be less than one for every 800, of the population of the area.

The Act establishes a Taxi Control Fund for the receipt of fees payable on the issue, renewal or transfer of licences. The expenses of the administration of the Act are paid from the Fund.

Chapter IX—continued

Part 4—Communication

POSTS, TELEGRAPHS AND TELEPHONES

The first postmasters in the Colony of Western Australia were appointed at Perth and Fremantle in 1830 and a Postal Department was established by the Colonial Government in 1834. Telegraphic communication, between Perth and Fremantle, was inaugurated in 1869 by means of a private line, which was purchased by the Government in 1871. A telephone exchange system, installed and operated by the Government, was opened at Perth in 1887.

In 1901, following the federation of the Australian Colonies, the post, telegraph and telephone services of the State Governments were transferred to the Commonwealth Government. The Post and Telegraph Act of 1901 placed the services under the control of a Commonwealth Minister to be known as the Postmaster-General.

The following table shows the number of persons employed by the Postmaster-General's Department in Western Australia, and the number of post offices and telephone offices throughout the State at 30 June in each year from 1964 to 1968. Full-time employees are those directly under the control of the Department. The remainder, shown as 'Other employees', provide services, which may or may not occupy their full time, under contract or in return for payments appropriate to work performed. 'Non-official' post offices are conducted by persons who are not members of the Commonwealth Public Service, and are frequently operated in conjunction with some other business activity. 'Telephone offices' are those where trunk-line calls and local calls may be made and telegrams lodged by members of the public, but which do not provide other postal facilities. Multi-coin public telephones are not included.

POSTMASTER-GENERAL'S DEPARTMENT—NUMBERS OF EMPLOYEES AND OFFICES
WESTERN AUSTRALIA

Particulars	At 30 June—				
	1964	1965	1966	1967	1968
Full-time employees—					
Permanent officers	4,842	4,966	5,065	5,344	5,561
Temporary and exempt officers	1,281	1,251	1,428	1,600	1,904
Total	6,123	6,217	6,493	6,944	7,465
Other employees—					
Non-official postmasters and staff	535	533	542	492	492
Telephone office-keepers	285	266	242	224	202
Mail contractors (*a*)	316	290	292	329	323
Part-time employees	231	241	262	305	314
Total	1,367	1,330	1,338	1,350	1,331
Total, Employees	7,490	7,547	7,831	8,294	8,796
Post offices—					
Official	148	149	151	153	156
Non-official	488	486	484	477	476
Telephone offices	284	268	241	222	198
Total, Offices	920	903	876	852	830

(*a*) Includes persons employed by contractors to drive vehicles on mail runs.

Figures relating to the revenue and expenditure of the Department in Western Australia during each of the financial years from 1963-64 to 1967-68 are given in the following table. They represent actual collections and payments in each year, as shown by records kept for Treasury purposes. Some additional items of departmental revenue and expenditure are not apportioned to States and therefore do not appear in the table.

POSTMASTER-GENERAL'S DEPARTMENT—CASH REVENUE AND EXPENDITURE
WESTERN AUSTRALIA
($'000)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
REVENUE (*a*)					
Postal	6,208	6,591	6,993	7,376	8,938
Telegraph	1,267	1,373	1,591	1,787	2,159
Telephone	12,490	15,061	17,276	18,897	22,057
Other	33	37	26	9	....
TOTAL	19,997	23,062	25,886	28,069	33,154
EXPENDITURE (*b*)					
Non-capital works—					
Expenditure from ordinary services votes—					
Salaries and payments in the nature of salary	6,828	7,530	8,179	9,502	10,737
Administration	836	977	1,147	1,062	1,243
Stores and material	196	226	317	551	566
Mail services	530	555	603	626	663
Engineering services, other than new works	5,084	5,971	7,046	7,469	8,505
Total	13,473	15,259	17,292	19,210	21,714
Rent, repairs and maintenance	229	268	372	484	512
Furniture and fittings	(*c*)	(*c*)	48	81	119
Capital works—					
Plant and equipment—					
Telegraph services	103	170	185	200	297
Telephone services	8,340	9,907	11,042	13,623	20,520
Other plant and equipment and motor vehicles	1,086	807	827	1,431	1,945
Buildings, sites and properties (*c*)	828	1,383	1,147	1,300	2,000
Total	10,358	12,267	13,200	16,554	24,762
GRAND TOTAL	24,060	27,795	30,912	36,328	47,107

(*a*) Revenue actually collected during the year, as recorded for Treasury purposes. (*b*) Actual payments made during the year, as recorded for Treasury purposes. (*c*) Prior to 1965–66, expenditure on furniture and fittings was included in the item *Buildings, sites and properties* under Capital works.

POSTMASTER-GENERAL'S DEPARTMENT—PROFIT OR LOSS (*a*) OF SERVICES
AUSTRALIA
($'000)

Particulars	1965–66			1966–67			1967–68		
	Postal	Telecommunications	All services	Postal	Telecommunications	All services	Postal	Telecommunications	All services
Earnings	116,746	284,528	401,274	119,988	311,500	431,488	138,179	364,478	502,656
Working expenses	124,279	216,803	341,082	139,347	244,614	383,961	152,210	281,659	433,869
Profit or loss before charging interest	—7,532	67,725	60,192	—19,359	66,885	47,527	—14,032	82,819	68,787
Interest	2,809	57,507	60,316	4,221	64,808	69,029	6,129	72,307	78,436
Profit or loss after charging interest	—10,341	10,217	— 124	—23,580	2,078	—21,502	—20,161	10,512	—9,648

(*a*) Minus sign (—) denotes loss.

As the figures shown in the first table on this page relate to actual collections and payments made, they do not represent the net results of the Department's operations for the year. The annual net results of the operations throughout Australia of each service, for

the three years ended 30 June 1968 after providing for working expenses (including depreciation, superannuation and furlough liability) and interest charges are shown in the previous table. The amounts appearing under the heading of *Interest* represent interest on funds provided by the Treasury.

Posts

In the following table, postal matter handled in Western Australia during each year from 1963-64 to 1967-68 is dissected according to the type of article dealt with, and whether received from overseas or posted for delivery in Australia or to an overseas destination.

POSTAL ARTICLES HANDLED
(Thousands)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Posted for delivery within Australia—					
Ordinary postal articles—					
Letter-form	130,714	136,287	143,192	153,082	159,093
Other	11,262	11,873	13,540	13,861	13,252
Parcels (*a*)	1,016	1,001	1,045	1,149	1,158
Registered articles (*b*)	533	575	659	663	667
Posted for delivery overseas—					
Ordinary postal articles—					
Letter-form	6,855	4,697	6,437	6,827	7,333
Other	1,216	721	869	1,050	995
Parcels (*a*)	29	28	31	32	42
Registered articles (*b*)	55	62	53	60	78
Received from overseas—					
Ordinary postal articles—					
Letter-form	3,454	3,970	3,961	5,213	8,508
Other	6,453	6,578	6,698	6,653	6,948
Parcels (*a*)	64	70	79	93	106
Registered articles (*b*)	44	46	49	50	53

(*a*) Includes registered, cash on delivery and duty parcels. (*b*) Excludes registered parcels; see note (*a*).

Telegraphs and Telephones

The next two tables relate to telegraph and telephone services in Western Australia in each financial year from 1963-64 to 1967-68. Telephone services comprise ordinary exchange services (*i.e.* those which provide direct access to the exchange system by means of exclusive use of an exchange line), duplex services, party-line services, private branch exchange services and public telephones. The numbers shown as ' Telephone instruments in service ' relate to those through which direct access to the exchange system may be obtained.

At 30 June 1968, the single wire mileage of telegraph and telephone cables in Western Australia was 1,274,360. The single wire mileage of aerial wires was 128,429 and the mileage of pole routes was 17,579. There were 742 tube miles of coaxial cable.

TELEGRAPHS

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of—					
Offices (*a*)	920	903	*876	852	830
Telegrams—	'000	'000	'000	'000	'000
Within Australia—Dispatched	1,940	2,004	2,160	2,245	2,359
Beyond Australia—Dispatched	84	98	110	119	133
Received	*84	90	97	107	(*b*)
Total	167	188	207	227	( )

(*a*) At 30 June. (*b*) Not available. * Revised.

TELEPHONES (*a*)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of—					
Exchanges	767	765	765	750	745
Services—					
Metropolitan (*b*)	77,312	81,404	86,787	93,528	101,451
Other	36,506	38,677	41,236	44,161	48,211
Total	113,818	120,081	128,023	137,689	149,662
Telephone instruments in service—					
Total	154,932	164,354	176,256	191,031	208,343
Per 100 of population (*a*)	*19·2	19·9	20·8	(*c*) 21·8	(*c*) 22·9

(*a*) At 30 June. (*b*) Services connected to exchanges located within 10 miles of the General Post Office, Perth. (*c*) Subject to revision after the 1971 Census of Population. * Revised.

The teleprinter exchange service (telex) was introduced in Perth in December 1956. This service enables a subscriber's teleprinter to be connected with that of any other subscriber in the local network or networks in other States.

TELEPRINTER EXCHANGE NETWORK (TELEX)

Particulars	1963–64	1964–65	1965–66	1966–67	1967–68
Number of—					
Services at 30 June	117	164	200	271	354
Local calls	3,947	3,913	7,992	(*a*)	(*a*)
Trunk calls	60,616	84,858	119,312	(*a*)	(*a*)
Total calls (*b*)	71,261	97,363	136,381	253,955	483,107

(*a*) Not available separately. (*b*) Includes Post Office official traffic.

RADIOCOMMUNICATION

The Overseas Telecommunications Commission (Australia) is the authority responsible for the operation of Australia's external telecommunication services by cable and radio.

The Commission is constituted under the provisions of the *Overseas Telecommunications Act* 1946-1968. This Act implemented, in Australia, a recommendation of the 1945 Commonwealth Telecommunications Conference for national ownership of the external telecommunication services of the British Commonwealth countries concerned and for the establishment of a representative advisory board, the Commonwealth Telecommunications Board, to co-ordinate their development.

The Commission thus participates with other countries of the British Commonwealth in the development, maintenance and operation of a world-wide network of cable and radio circuits. The whole of Australia's international public telecommunications traffic is handled through this network, traffic being routed over cable or radio circuits, or a combination of them, according to circumstances.

The Commission operates a coastal radio service, telegraph, telex and photo-telegraph services and, in conjunction with the Postmaster-General's Department, telephone services with overseas countries and ships at sea.

The coastal radio service provides, as its principal function, essential maritime communications, including distress signals, navigation warnings, air-sea rescue service and radio-medical service messages, meteorological messages and time signals, as well as naval traffic as required. It provides also, by radiotelegraph and radiotelephone, commercial communications with ships at sea and, by radiotelephone, message communication with small vessels. Western Australian coastal radio stations at Perth, Broome, Esperance and Geraldton are operated by the Overseas Telecommunications Commission, and at Wyndham by the Department of Civil Aviation as agent for the Commission.

The licensing of civil radiocommunication stations and the transmission of radio messages within Australia are the responsibility of the Postmaster-General's Department. The Royal Flying Doctor Service of Australia, to which reference is made in the section *Air Transport* in Part 3 of this Chapter, provides general telegraph facilities in remote areas through its extensive radio network.

At 30 June 1969 there were 114,033 civil radiocommunication stations authorised throughout Australia. They comprised 3,960 fixed stations, 9,153 land stations, 95,043 mobile stations and 5,877 amateur stations.

The numbers of each type of radiocommunication station authorised to operate in Western Australia at 30 June 1969 are given in the next table. The following definitions are relevant in considering the figures shown in the table. *Fixed Stations*—Stations established at fixed locations for communication with other stations similarly established. *Outposts*—Stations established in outback areas for communication with control stations such as those of the Royal Flying Doctor Service. *Land Stations*—Stations established at fixed locations for communication with mobile stations. *Coast Stations*—Land stations for communication with ocean-going vessels. *Mobile Stations*—Equipment installed in aircraft (aeronautical), motor vehicles (land mobile services), harbour vessels (harbour mobile services) and ocean-going vessels (ship), and mobile equipment of organisations such as the Royal Flying Doctor Service.

CIVIL RADIOCOMMUNICATION STATIONS AUTHORISED AT 30 JUNE 1969

Type of station	Number	Type of station	Number
TRANSMITTING AND RECEIVING—		TRANSMITTING AND RECEIVING—*cntd*	
Fixed stations—		Mobile stations—	
Aeronautical	17	Aeronautical	452
Services with other countries	13	Land mobile services	8,106
Outpost	434	Harbour mobile services	208
Other	282	Outpost	729
Land stations—		Ship	1,154
Aeronautical	38	Amateur	436
Base stations—			
Land mobile services	876	TOTAL, TRANSMITTING AND RECEIVING	12,895
Harbour mobile services	41	RECEIVING ONLY (fixed)	57
Coast	43		
Special experimental	66	GRAND TOTAL	12,952

BROADCASTING AND TELEVISION

Broadcasting and television services throughout Australia are controlled by the Australian Broadcasting Control Board under the Ministerial direction of the Postmaster-General. The Board is established by a provision of the *Broadcasting and Television Act* 1942-1969, which places under its general control the National Broadcasting Service, the National Television Service, the Commercial Broadcasting Service and the Commercial Television Service. The Act prescribes the fees payable for broadcast listeners' licences and television viewers' licences, while the fees to be charged for licences to operate commercial broadcasting and television stations are provided for in the *Broadcasting Stations Licence Fees Act* 1964-1966 and the *Television Stations Licence Fees Act* 1964-1966.

The principal functions of the Australian Broadcasting Control Board, which consists of three full-time and two part-time members, are to ensure that services by broadcasting stations and television stations are in accordance with approved plans, that stations are operated in accordance with appropriate technical standards, and that adequate and comprehensive programmes are provided. Subject to the approval of the Minister and of the Treasurer, the Board may give financial and other assistance to commercial broadcasting stations for the purpose of ensuring that programmes of adequate extent, standard and variety are provided in the areas which they serve. The Board is required to hold public inquiries into applications for licences for commercial broadcasting and television

stations in areas for which the Minister proposes to grant licences. It is also the responsibility of the Board to determine, subject to any direction of the Minister, the situation, operating power and operating frequencies of broadcasting and television stations.

The Australian Broadcasting Commission, which is constituted under the *Broadcasting and Television Act* 1942-1969, controls the activities of, and provides programmes for, the National Broadcasting Service and the National Television Service which use transmitters operated by the Postmaster-General's Department. The operations of the Commission are financed by appropriations made by the Commonwealth Parliament.

The income of licensees of commercial broadcasting and television stations is derived from advertisements and other forms of publicity.

Commercial broadcasting stations are operated under licences granted and renewed by the Postmaster-General after taking into consideration any recommendations which have been made by the Broadcasting Control Board. The initial period of a licence is five years and renewals are granted for a period of one year.

Commercial television stations are also operated under licences granted and renewed by the Postmaster-General. The initial grant of a licence is for a period of five years and thereafter the licence is renewable annually.

Broadcasting and Television Stations

In 1923, the first radio broadcasting station commenced operations in Australia and, in the following year, station 6WF (Westralian Farmers) opened in Perth.

Television commenced in Australia on 16 September 1956 when station TCN, Sydney began regular transmission. By 30 June 1969 the number of stations in operation had increased to a total of eighty-four, comprising thirty-nine national stations and forty-five commercial stations.

The first television station in Western Australia commenced full-scale transmission in Perth on 16 October 1959 and, at 30 June 1969, three metropolitan and five country television stations were operating.

The following tables show details of national and commercial broadcasting stations and television stations operating in Western Australia at 30 June 1969.

BROADCASTING STATIONS AT 30 JUNE 1969

NATIONAL STATIONS					COMMERCIAL STATIONS				
Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (*a*)	Type and location	Call sign	Frequency (kHz)	Aerial power (watts)	Hours of service per week (*a*)
Medium frequency—					Perth	6IX	1,080	2,000	168
Perth	6WF	690	50,000	125¾	„	6KY	1,210	2,000	168
„	6WN	810	10,000	125½	„	6PM	1,000	2,000	168
Albany	6AL	650	400	125¾	„	6PR	880	2,000	168
Broome	6BE	670	50	125¾	Albany	6VA	780	2,000	123
Carnarvon	6CA	850	200	125¾	Bridgetown	6BY	900	2,000	113
Dalwallinu	6DL	530	10,000	125¾	Bunbury	6TZ	960	2,000	124¾
Derby	6DB	870	2,000	125¾	Collie	6CI	1,130	2,000	124¾
Esperance	6ED	840	1,000	125¾	Geraldton	6GE	1,010	2,000	118
Kalgoorlie	6GF	660	2,000	125¾	Kalgoorlie	6KG	980	2,000	112
Geraldton	6GN	830	2,000	125¾	Katanning	6WB	1,070	2,000	116
Northam	6NM	600	200	125¾	Merredin	6MD	1,100	2,000	115½
Port Hedland	6PH	600	2,000	125¾	Narrogin	6NA	920	2,000	123¼
Wagin	6WA	560	50,000	125¾	Northam	6AM	860	2,000	119
High frequency—									
Perth	VLW	(*b*)	10,000	125¾					
„	VLX	(*b*)	50,000	125¾					

(*a*) To the nearest quarter hour. (*b*) The frequencies on which these stations transmit are varied as required to obtain optimum results.

TELEVISION STATIONS AT 30 JUNE 1969 (*a*)

Call sign and channel	Area served	Location of transmitter	Authorised frequencies (mHz)	Polarisation	Hours of service per week (*b*)	Date of commencement of operations (*c*)
NATIONAL STATIONS						
ABW–2	Perth	Bickley	63–70 Vision 64·25 Sound 69·75	Horizontal	78¼	7 May 1960
ABAW–2	Southern Agricultural	Mount Barker	63–70 Vision 64·24 Sound 69·74	Vertical	78¼	6 June 1966
ABCW–4	Central Agricultural	Mawson Trig	94–101 Vision 95·26 Sound 100·76	Horizontal	78¼	28 March 1966
ABSW–5	Bunbury	Mount Lennard	101–108 Vision 102·25 Sound 107·75	Horizontal	78¼	10 May 1965
COMMERCIAL STATIONS						
STW–9	Perth	Bickley	195–202 Vision 196·25 Sound 201·75	Horizontal	92	12 June 1965
TVW–7	Perth	Bickley	181–188 Vision 182·25 Sound 187·75	Horizontal	92¾	16 October 1959
BTW–3	Bunbury	Mount Lennard	85–92 Vision 86·24 Sound 91·74	Horizontal	42¼	10 March 1967
GSW–9	Southern Agricultural	Mount Barker	195–202 Vision 196·24 Sound 201·74	Vertical	42¼	23 August 1968

(*a*) The operating power for BTW–3 Bunbury and GSW–9 Southern Agricultural is: Vision, 50 kW e.r.p. (effective radiated power); Sound, 10 kW e.r.p., and for all other stations is: Vision, 100 kW e.r.p.; Sound, 20 kW e.r.p. (*b*) To nearest quarter hour. (*c*) Date on which full-scale transmission began.

Receiving Licences

Broadcast listeners', television viewers', and combined receiving licences are issued at post offices in accordance with the provisions of the *Broadcasting and Television Act* 1942-1969, which stipulates that, except as prescribed, a person shall not use, maintain or have in his possession a broadcast or television receiver unless there is in force a licence which applies to that receiver. A broadcast listener's licence or a television viewer's licence, whichever is appropriate, authorises the operation of any broadcast receiver or any television receiver, which is in the possession of the holder of a licence, or of a member of his family, at the address specified in the licence and is ordinarily kept at that address; or is installed in a vehicle which is ordinarily in the possession of the holder, or a member of his family, and is ordinarily kept at that address when not in use. A person who has both broadcast and television receivers at the one address is required to take out a combined receiving licence, provision for which was introduced by legislation effective from 1 April 1965.

A licence may be granted free of charge to a blind person over sixteen years of age or to a person or authority conducting a school, and at a concession rate to certain classes of pensioners. Receivers provided for the use of inmates of an institution (including a hospital) are covered by an appropriate licence held by the institution. Persons residing in Zone 2 may also be granted a broadcast listener's licence at a reduced rate. Zone 1 is the areas within 250 miles of specified broadcasting stations and Zone 2 is the remainder of Australia.

Each broadcast or television receiver let out on hire (except under a hire purchase agreement) must be covered by a hirer's licence held by the person or firm from whom the receiver is hired. The keeper of a lodging house (which includes a hotel, motel, board-

ing house or any other premises where lodging or sleeping accommodation is provided for reward) must take out a lodging house licence for each broadcast or television receiver for occupation by lodgers.

The annual fee payable at 30 June 1969 for each class of licence is shown in the following table.

BROADCAST LISTENERS' AND TELEVISION VIEWERS' LICENCES
ANNUAL FEES: 30 JUNE 1969

Class of licence	Ordinary rate	Pensioner rate
	$	$
Broadcast listener's licence and hirer's licence for a broadcast receiver—		
Zone 1	6.50	1.00
Zone 2	3.30	0.70
Lodging house licence for a broadcast receiver—		
Zone 1	6.50	....
Zone 2	3.30	....
Television viewer's licence and hirer's licence for a television receiver	14.00	3.00
Lodging house licence for a television receiver	14.00	....
Combined receiving licence	20.00	4.00

Revenue in Western Australia from fees for all receiving licences amounted to $2,124,246 in 1964-65, $2,285,076 in 1965-66, $2,570,450 in 1966-67, $2,665,963 in 1967-68 and $3,127,068 in 1968-69.

RECEIVING LICENCES

Class of licence	Number in force at 30 June—				
	1965	1966	1967	1968	1969
BROADCAST LISTENERS' LICENCES					
Ordinary	122,503	43,724	34,702	36,857	33,933
Hirers'	14	12	12	12	55
Lodging house	48	94	43	196	724
Pensioners'	22,208	11,286	9,411	8,900	8,124
Total	144,773	55,116	44,168	45,965	42,836
TELEVISION VIEWERS' LICENCES					
Ordinary	71,605	10,771	12,051	11,700	11,525
Hirers'	11,204	15,687	15,531	16,149	22,230
Lodging house	236	296	342	519	778
Pensioners'	10,026	1,534	1,721	1,873	1,977
Total	93,071	28,288	29,645	30,241	36,510
COMBINED RECEIVING LICENCES					
Ordinary	25,660	97,965	111,398	115,867	125,131
Pensioners'	4,228	14,975	17,230	18,802	20,948
Blind persons'	416	451	396	} 722	718
Schools'	366	392	379		
Total	30,670	113,783	129,403	135,391	146,797

Analysis of Programmes

The particulars shown in the following tables have been taken from the Report of the Australian Broadcasting Control Board for the year ended 30 June 1969.

Broadcasting. The analysis of broadcasting programmes, as shown in the following table, is based on the combined figures from two surveys conducted by the Board in November 1968 and May 1969. In each case programmes of stations in State capital cities were monitored on a sampling basis for one minute in each ten minutes of transmission between 7.00 a.m. and 10.30 p.m. for a full week.

BROADCASTING STATIONS—ANALYSIS OF PROGRAMMES METROPOLITAN STATIONS: AUSTRALIA

Programme category	National (*a*)	Commercial	Total
Entertainment—	per cent	per cent	per cent
Light and popular music	30·4	50·0	43·8
The arts (*b*)	22·9	0·2	7·4
Variety	2·1	1·5	1·6
Drama	2·9	0·4	1·2
Other	7·5	8·6	8·2
Total	65·8	60·7	62·2
Information and services—			
News	10·1	9·9	9·9
Sport	3·5	6·0	5·2
Information (*c*)	8·4	1·5	3·7
Religious	2·3	3·1	2·9
Social and political	2·8	2·2	2·4
Family (*d*)	0·7	2·1	1·7
Educational (*e*)	3·6	....	1·1
Children's	2·8	0·1	1·0
Total	34·2	24·9	27·9
Advertisements	....	14·4	9·9
GRAND TOTAL	100·0	100·0	100·0

(*a*) Comprises 2 representative national stations. (*b*) Serious music and opera; readings of prose and poetry; literary and art criticism. (*c*) Includes such topics as aspects of science; other countries and peoples; agriculture and other industries. (*d*) Includes programmes dealing with cooking; house and garden; hobbies; care of pets; health and physical fitness. (*e*) Programmes designed as an aid to formal teaching; kindergarten sessions.

Television. The analysis of television programmes, as shown in the following table, is based on a 25 per cent sample of commercial and national programmes televised between 3 June 1968 and 4 May 1969. Details of commercial television programmes are derived from data supplied regularly by each station and details of national television programmes are obtained from information supplied by the Australian Broadcasting Commission.

TELEVISION STATIONS—ANALYSIS OF PROGRAMMES: AUSTRALIA

Programme category	Metropolitan			Country		
	National	Commercial (*a*)	Total	National	Commercial (*a*)	Total
Drama—	per cent	per cent	per cent	per cent	per cent	per cent
Adventure	9·4	12·7	11·9	9·4	14·7	11·4
Crime and suspense	3·4	7·4	6·4	3·4	7·9	5·1
Domestic and comedy	12·6	14·1	13·7	12·6	16·8	14·2
Western	2·7	6·2	5·4	2·7	6·8	4·3
Miscellaneous	3·4	11·9	9·8	3·4	9·1	5·6
Total	31·5	52·3	47·2	31·5	55·3	40·6
Light entertainment—						
Cartoons	5·0	6·4	6·0	5·0	4·6	4·8
Light music	1·5	3·0	2·7	1·5	4·0	2·4
Personality programmes	0·6	8·1	6·3	0·6	6·9	3·0
Talent programmes	....	1·1	0·8	....	1·7	0·7
Variety	3·2	3·5	3·5	3·2	3·9	3·5
Total	10·3	22·1	19·3	10·3	21·1	14·4
Other—						
Sport	11·7	5·9	7·3	11·7	4·6	9·0
News	7·2	6·5	6·7	7·2	8·3	7·6
Children's	8·7	5·7	6·4	8·7	3·3	6·7
Education—						
Formal	12·7	....	3·0	12·7	....	7·8
Other	1·1	0·5	0·7	1·1	(*b*)	0·6
Current affairs	8·0	1·3	2·9	8·0	1·5	5·5
Information	3·4	1·9	2·3	3·4	2·6	3·1
Family activities	1·3	2·5	2·2	1·3	1·8	1·6
Religious matter	2·4	1·2	1·5	2·4	1·4	2·0
The arts	1·7	0·1	0·5	1·7	0·1	1·1
Total	58·2	25·6	33·5	58·2	23·6	45·0
GRAND TOTAL	100·0	100·0	100·0	100·0	100·0	100·0

(*a*) Excludes time occupied by advertisements. A survey in 1969 showed that, for Melbourne stations, advertisements occupied 14·7 per cent of the total time. (*b*) Less than 0·05 per cent.

CHAPTER X—INDUSTRIAL CONDITIONS, EMPLOYMENT AND PRICES

Part 1—Industrial Conditions

INDUSTRIAL AUTHORITIES

Commonwealth Authorities

A Commonwealth Court of Conciliation and Arbitration was established under the provisions of the *Commonwealth Conciliation and Arbitration Act* 1904. By an amendment made to the Conciliation and Arbitration Act in 1956 the Commonwealth arbitration system was reorganised by the creation of two separate authorities to deal with matters formerly within the sole jurisdiction of the Court. The amendment had the effect of allocating to a Commonwealth Industrial Court the judicial functions, and to a Commonwealth Conciliation and Arbitration Commission the arbitral functions, previously carried out by the Commonwealth Court of Conciliation and Arbitration.

Commonwealth Industrial Court. The Commonwealth Industrial Court, as constituted at 31 December 1969, comprises a Chief Judge and seven other Judges. The Act provides that, except in respect of certain specified matters, the jurisdiction of the Court shall be exercised by not less than two Judges. A single Judge may refer a question of law for the opinion of the Court constituted by not less than two Judges. Although, in general, decisions of the Court are final, an appeal may be made to the High Court of Australia, but only when the High Court grants leave to appeal.

Commonwealth Conciliation and Arbitration Commission. The Commonwealth Conciliation and Arbitration Commission, according to the provisions of the *Conciliation and Arbitration Act* 1904-1969, shall consist of a President, not less than two Deputy Presidents, a Senior Commissioner and not less than five Commissioners. The Act provides also for the appointment of Conciliators. At 31 December 1969 there were, in addition to the President and the Senior Commissioner, five Deputy Presidents, eleven Commissioners and four Conciliators. Generally, the Commission's jurisdiction is limited to the prevention or settlement, by conciliation or arbitration, of industrial disputes which extend beyond the limits of any one State, but the Commission is authorised to conciliate or arbitrate in respect of any dispute or industrial matter associated with Commonwealth Government undertakings or projects. The power to make awards or certify agreements concerning standard hours, basic wages and long service leave is reserved to the Commission in Presidential Session, which is constituted by not less than three presidential members nominated by the President. The Principal Registry of the Commission is in Melbourne, Victoria, and there is a Deputy Industrial Registrar in each State.

Western Australian Authorities

A Court of Arbitration was established in Western Australia in 1901 under the provisions of the *Industrial Conciliation and Arbitration Act, 1900*. The Court comprised a President, a representative of associations of employers and a representative of associations of workers. The Court of Arbitration was replaced, with effect from 1 February 1964, by the Western Australian Industrial Appeal Court and The Western Australian Industrial Commission, authorities constituted in terms of the *Industrial Arbitration Act, 1912-1968*.

Western Australian Industrial Appeal Court. The Western Australian Industrial Appeal Court consists of three Judges, one of whom is President of the Court. The President and the other members are nominated by the Chief Justice of Western Australia. Certain

of the functions, powers and jurisdiction conferred on the Court may be exercised by any member, on the nomination of the President, sitting or acting alone. An appeal lies to the Court from any decision of The Western Australian Industrial Commission or the Commission in Court Session, but only on the ground that such decision is erroneous in law or is in excess of jurisdiction.

The Western Australian Industrial Commission. The Western Australian Industrial Commission consists of a Chief Industrial Commissioner and three other Commissioners. The Act provides that a Commissioner sitting or acting alone constitutes the Commission and may exercise all the powers and jurisdiction of the Commission.

The Commission is empowered to inquire into any industrial matter or industrial dispute in any industry and to make orders or awards fixing the prices for work done by and the rates of wages payable to workers; fixing the number of hours and the times to be worked in order to entitle those workers to the wages so fixed; limiting the hours of piece workers; fixing the rates for overtime, work on holidays, shift work, week-end work and other special work, including allowances as compensation for overtime; determining any industrial matter; and declaring what deduction may be made from the prices or wages of workers for board or residence or board and residence provided for workers and for any customary provisions or payments in kind conceded to such workers.

The Commission in Court Session is constituted by not less than three Commissioners sitting or acting together. Appeals from decisions of a single Commissioner are heard and determined by the Commission in Court Session. Such appeals are restricted to the evidence and matters raised in the proceedings before the single Commissioner.

Western Australian Coal Industry Tribunal. The Western Australian Coal Industry Tribunal, as constituted under the *Mining Act, 1904-1969*, consists of five members appointed by the Governor. One member is chairman of the Tribunal, and there are two members representing employees, and two representing employers. The Tribunal has power to consider and determine industrial disputes, not extending beyond the limits of the State, and other matters relating to the coal-mining industry.

TRADE UNIONS

The following table gives particulars of the number of trade unions in Western Australia and the number of members at the end of December of the years 1964 to 1968. The table also shows the estimated proportion of trade union members to total wage and salary earners in employment. As estimates of numbers of wage and salary earners in employment do not include employees engaged in rural industry or in private domestic service (see letterpress *Estimates of Employment* on page 497), the percentages have been calculated on figures obtained by adding to the estimates for December in each year the number of employees in rural industry and private domestic service recorded at the nearest available Population Census. For this reason, and also because the membership of trade unions includes some persons not in employment, the percentages shown in the table are approximations.

TRADE UNIONS—NUMBER AND MEMBERSHIP

Date	Number of unions	Number of members ('000)			Proportion of total wage and salary earners (*a*) (per cent)		
		Males	Females	Persons	Males	Females	Persons
End of December—							
1964	154	108·5	26·6	135·1	61	43	56
1965	155	110·6	28·6	139·2	59	42	54
1966	157	114·7	31·8	146·6	59	45	55
1967	155	117·4	34·9	152·3	58	45	54
1968	157	123·1	37·8	160·9	58	45	54

(*a*) See letterpress immediately preceding table.

The following table shows the numbers and membership of trade unions in Western Australia in broad industry groups. The table does not give a precise classification of trade union members according to industry, because in cases where the members of a union are employed in a number of industries they have been classified to the predominant industry for the union concerned.

TRADE UNIONS—NUMBER AND MEMBERSHIP: INDUSTRY GROUPS

Date	Manufacturing	Building and construction	Transport	Public authority n.e.i., etc. (*a*)	Other (*b*)	All groups
NUMBER OF UNIONS						
End of December—						
1964	36	7	20	45	46	154
1965	35	7	20	45	48	155
1966	36	7	20	44	50	157
1967	34	8	20	43	50	155
1968	33	7	20	46	51	157
NUMBER OF MEMBERS ('000)						
End of December—						
1964	30·4	10·7	18·7	29·2	46·2	135·1
1965	31·9	11·4	19·2	30·1	46·7	139·2
1966	33·5	11·5	19·1	31·9	50·6	146·6
1967	33·5	13·9	19·3	33·1	52·5	152·3
1968	34·3	17·9	20·0	35·0	53·9	160·9

(*a*) Includes *Communication and municipal, etc.* (*b*) Includes *Agriculture, etc.; Mining and quarrying; Banking, insurance and clerical; Wholesale and retail trade; Amusement, hotels, personal service, etc.;* and *Community and business services.*

APPRENTICESHIP

The first registration of an apprentice in Western Australia was made on 25 May 1903 to the trade of book binding. At 31 December 1968 the total number of apprentices registered in this State was 10,387 in a wide variety of trades as given in the table on page 473.

Apprenticeships in this State are provided for and are subject to awards of The Western Australian Industrial Commission and registered industrial agreements. The Western Australian Industrial Commission functions by authority of the *Industrial Arbitration Act, 1912-1968.*

By definition, an apprentice is a person of either sex and of any age (other than the minimum age for which compulsory school attendance is required) who is apprenticed to learn or to be taught any industry, trade, craft or calling to which the Apprenticeship Regulations of the Commission apply. The Commission controls all industrial aspects of apprenticeship while the Technical Education Division of the Education Department provides the technical training as prescribed by the various awards of the Commission and by industrial agreements.

The Western Australian Apprenticeship Advisory Council, which comprises two representatives each from employers, employees and the State Government, and the Industrial Registrar as Chairman, advises the Minister for Labour, the Minister for Education and the Commission on matters of policy in respect of apprenticeship.

The Council assigns to Apprenticeship Advisory Boards such matters of an advisory nature relating to its trade or group of trades as considered necessary. Recommendations made to the Council from a Board may, after consideration and approval by the Council, be submitted to the Commission or Director-General of Education with a view to their implementation. The Boards consist of representatives from employers and employees, together with a representative from both the Department of Labour and Technical Education Division of the Education Department. The Administrative Officer of the Council is Chairman of all Apprenticeship Advisory Boards, thereby establishing a permanent liaison between the Boards and the Council.

A major achievement has been the general acceptance by most trades and by the consent of all parties involved in apprenticeship agreements of the Council's policy of shortened terms on grounds of educational achievement and vocational aptitude. The only major industry currently not participating in this policy is the printing trade.

Technical school attendance is compulsory when the Technical Education Division has suitable classes available in schools within a twelve-mile radius of the apprentice's home. Block release training was commenced in 1969 in the carpentry and joinery trade and the painting trade; in other cases day release training is prescribed. In the building trade compulsory attendance for intensive training is prescribed for country apprentices and correspondence lessons are available in most other trades.

Federal awards are of much less significance than State awards in apprenticeship matters in Western Australia. The total numbers of apprentices employed in this State at 31 December 1969 under the provisions of the *Commonwealth Conciliation and Arbitration Act* 1904-1969 and the *Public Service Act* 1922-1968 were 299 and 64, respectively. Section 52 of the Commonwealth Conciliation and Arbitration Act enables the Commonwealth Conciliation and Arbitration Commission to issue awards covering the rates of pay and conditions of employment of apprentices. In practice, however, the Commonwealth tends to delegate or refer the authority in such matters to the State.

As a result, the Industrial Registrar of The Western Australian Industrial Commission registers agreements involving apprentices and, on the completion of the term of apprenticeship, issues a Final Certificate, provided the apprentice has met the statutory requirements of the State in respect of examinations conducted by The Western Australian Industrial Commission and the Technical Education Division of the Education Department.

APPRENTICESHIP—NUMBER OF EFFECTIVE REGISTRATIONS

Trade	At 31 December—			Trade	At 31 December—		
	1966	1967	1968		1966	1967	1968
State awards—				State awards—*continued*			
Baking	85	74	84	Optical	10	9	11
Bootmaking	5	5	6	Pastry cooking	39	46	40
Building—				Printing—			
Carpentry and joinery	790	866	934	Composing	114	106	105
Bricklaying	93	98	113	Letterpress machining	30	27	29
Painting and signwriting	354	330	336	Other	66	74	81
Plastering	66	82	96	Radio and television servicing	55	67	83
Plumbing	396	432	474	Saddlery and leather working	6	5	4
Glazing	42	39	46	Sheetmetal working	250	241	249
Other	5	5	8	Timber machining	65	59	62
Butchering and smallgoods	433	404	437	Vehicle building—			
Dental technician	17	17	29	Bodymaking	170	136	136
Furniture—				Painting	165	172	194
Cabinetmaking	214	241	288	Panel beating	328	339	360
Woodmachining	69	63	69	Other	24	25	20
Upholstery	32	35	38				
Other	57	58	64	Total, State awards	9,072	9,290	10,024
Hairdressing—				Commonwealth awards—			
Men's	77	82	90	Aircraft engineering	57	66	79
Ladies'	817	865	959	Bootmaking	47	37	27
Jewellery and watchmaking	27	25	25	Printing—			
Metal trades—				Composing	65	63	63
Boilermaking	474	496	542	Letterpress machining	67	70	72
Electrical fitting	456	497	532	Other	21	20	20
Electrical installing	383	434	510	Shipwrighting	35	32	38
Fitting and turning	463	485	534				
Fitting	379	339	274	Total, Commonwealth awards	292	288	299
Turning	104	90	93				
Motor mechanic	1,204	1,262	1,362	Commonwealth Government Departments	49	56	64
Moulding	85	74	59				
Refrigeration fitting	67	78	87	GRAND TOTAL	9,413	9,634	10,387
Welding	198	187	183				
Other	358	321	378				

In the previous table, the total number of apprentices registered in this State at 31 December is given for each of the years 1966 to 1968.

The next table shows the number of new registrations made to various trades during each of the three years.

APPRENTICESHIP—REGISTRATIONS TO VARIOUS TRADES

Trade	1966	1967	1968
State awards—			
Baking	18	21	27
Bootmaking	2	3	3
Building—			
Carpentry and joinery	206	244	294
Bricklaying	19	23	39
Painting and signwriting	73	55	101
Plastering	9	32	34
Plumbing	84	116	142
Glazing	8	10	30
Other	3	1	3
Butchering and smallgoods	112	98	140
Dental technician	7	7	13
Furniture—			
Cabinetmaking	63	65	105
Woodmachining	17	18	20
Upholstery	7	12	13
Other	11	15	11
Hairdressing—			
Men's	16	25	29
Ladies'	219	270	270
Jewellery and watchmaking	9	5	7
Metal trades—			
Boilermaking	139	124	158
Electrical fitting	103	147	153
Electrical installing	88	137	155
Fitting and turning	111	123	150
Fitting	79	73	77
Turning	22	25	26
Motor mechanic	296	336	376
Moulding	17	18	11
Refrigeration fitting	18	22	35
Welding	46	50	46
Other	88	81	114
State awards—*continued*			
Optical	2	2	4
Pastry cooking	8	13	10
Printing—			
Composing	17	38	29
Letterpress machining	12	7	17
Other	20	26	52
Radio and television servicing	18	25	21
Saddlery and leather working	4	1	2
Sheetmetal working	64	39	59
Timber machining	16	5	15
Vehicle building—			
Bodymaking	21	42	35
Painting	41	48	51
Panel beating	98	76	89
Other	10	10	4
Total, State awards	2,221	2,488	2,970
Commonwealth awards—			
Aircraft engineering	21	23	33
Bootmaking	8	12	8
Printing—			
Composing	19	8	17
Letterpress machining	15	18	19
Other	6	10	12
Shipwrighting	14	7	13
Total, Commonwealth awards	83	78	102
Commonwealth Government Departments	10	19	19
GRAND TOTAL	2,314	2,585	3,091

INCIDENCE OF INDUSTRIAL AWARDS

The table below indicates the approximate proportions of Western Australian employees covered by awards, determinations and registered industrial agreements under Commonwealth and State jurisdictions. The proportions not so covered (including those working under unregistered industrial agreements) are also shown. The figures summarise part of the data obtained from surveys of the Australian wage structure in April 1954, May 1963 and May 1968.

The estimates shown in the table were derived from returns collected from:

(i) a stratified random sample of most private employers subject to Pay-roll Tax;

(ii) all public hospitals and marketing boards;

(iii) all Commonwealth and State government departments and semi-government authorities; and

(iv) a stratified random sample of local government bodies.

Because of coverage difficulties, employees on rural holdings and in private households were excluded from the survey. For further information relating to the survey of May 1968 and for statistics in greater detail, the reader is referred to the mimeographed publication *Survey of the Incidence of Industrial Awards, Determinations and Collective Agreements* issued by the Commonwealth Statistician, Canberra.

The term ' awards, etc. ' in the following table means awards or determinations of, or agreements registered with, Commonwealth or State industrial authorities.

INCIDENCE OF AWARDS (*a*)

Date	Males				Females			
	Employees represented in estimates	Employees affected by awards, etc.		Other employees	Employees represented in estimates	Employees affected by awards, etc.		Other employees
		Commonwealth awards, etc.	State awards, etc.			Commonwealth awards, etc.	State awards, etc.	
	'000	per cent	per cent	per cent	'000	per cent	per cent	per cent
1954—April	124	12·5	77·1	10·4	35	18·7	71·8	9·5
1963—May	136	13·3	76·5	10·2	42	14·8	74·4	10·8
1968—May	166	16·9	70·7	12·4	60	15·7	76·1	8·2

(*a*) Awards or determinations of, or agreements registered with, Commonwealth or State industrial authorities.

INDUSTRIAL DISPUTES

Statistics of industrial disputes are compiled by the Commonwealth Statistician from data obtained from the following sources: direct collections from employers and trade unions concerning individual disputes; reports from government departments and authorities; reports of State and Commonwealth industrial authorities; and information contained in trade journals, employer and trade union publications, and newspaper reports.

INDUSTRIAL DISPUTES (*a*)

Year	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (*b*)	Total		
						$'000
1964	26	6,093	72	6,165	7,148	62·6
1965	33	12,611	....	12,611	10,020	100·8
1966	25	2,860	16	2,876	6,239	64·5
1967	26	5,032	39	5,071	5,994	62·6
1968	70	18,323	361	18,684	21,762	281·8

(*a*) Refers only to disputes involving a stoppage of work of ten man-days or more. (*b*) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute.

INDUSTRIAL DISPUTES (*a*)—INDUSTRY GROUPS: 1968

Industry group	Number of disputes	Number of workers involved			Number of working days lost	Estimated loss in wages
		Directly	Indirectly (*b*)	Total		
						$'000
Agriculture, grazing, etc.	....	....	....	....	....	....
Coal mining	....	....	....	....	....	....
Other mining and quarrying	8	2,264	....	2,264	6,482	123.5
Manufacturing—						
Engineering, metals, vehicles, etc.	7	698	....	698	484	5.4
Textiles, clothing and footwear	....	....	....	....	....	....
Food, drink and tobacco	10	1,236	....	1,236	1,171	15.1
Sawmilling, furniture, etc.	1	128	....	128	183	1.6
Paper, printing, etc.	2	284	....	284	220	2.4
Other manufacturing	2	213	....	213	419	5.0
Building and construction	12	1,168	....	1,168	2,270	29.6
Railway services	2	1,445	361	1,806	2,081	16.2
Road and air transport	2	69	....	69	148	1.9
Shipping	....	....	....	....	....	....
Stevedoring	22	10,090	....	10,090	5,892	63.6
Amusement, hotels, personal service, etc.	1	16	....	16	16	0.1
Other industries (*c*)	1	712	....	712	2,396	17.6
Total	70	18,323	361	18,684	21,762	281.8

(*a*) Refers only to disputes involving a stoppage of work of 10 man-days or more. (*b*) Persons thrown out of work at the establishments where the stoppages occurred, but not themselves parties to the dispute. (*c*) Includes *Communication; Finance and property; Wholesale and retail trade; Public authority (n.e.i.);* and *Community and business services.*

In the above two tables details of industrial disputes in Western Australia during the years 1964 to 1968 are given, together with an analysis, according to industry group, of disputes which were in progress in 1968. The statistics relate only to disputes involving stoppages of work of ten man-days or more in the establishment where the stoppage occurred. Effects on other establishments resulting from lack of materials, disruption of transport services, power cuts, etc. are not measured by these statistics.

Particulars of all disputes in progress during the year are included in the annual figures, whether the dispute commenced in that year or was in progress at the beginning of the year. Consequently, details of 'the number of disputes' and 'workers involved' in disputes which commenced in any year, and were still in progress during the following year, are included in the figures for both years.

WAGES AND EARNINGS

The Basic Wage

Commonwealth Basic Wage. The *Western Australian Year Book*, No. 7—1968 and earlier issues contain an account of the development of the Commonwealth basic wage from its inception until it was abandoned in 1967. In a unanimous judgment given on 5 June 1967 the Commonwealth Conciliation and Arbitration Commission announced 'the elimination of basic wages and margins and the introduction of total wages'. An increase of $1 per week was awarded to all adult employees and the judgment stated that 'total wages will be arrived at by adding an amount of $1 per week to the weekly award wages of all adult males and females . . .' and further, that the Commission had 'on this occasion deliberately awarded the same increase to adult females and adult males'. The increase was declared to become operative from the beginning of the first pay-period commencing on or after 1 July 1967.

A table showing Commonwealth basic wage rates at 31 December of each year from 1923 to 1966 is given in the *Statistical Summary from 1829* following this Chapter.

State Basic Wage. Reference is made in the *Western Australian Year Book*, No. 7—1968 and earlier issues to the work of the former Court of Arbitration in the field of wage determination from the declaration of the first State basic wage in 1926.

The Western Australian Industrial Commission came into operation on 1 February 1964, replacing the Court of Arbitration as the authority responsible for State basic wage determinations in Western Australia. The *Industrial Arbitration Act, 1912-1968* requires that such determinations shall be made by the Commission in Court Session. The Commission so constituted made its first adjustment to the basic wage on 27 April 1964, when it prescribed increased rates to apply on and from that date. As a result of this decision, the weekly rates payable to adult males became £15 4s. 2d. ($30·42) in the Metropolitan Area, £15 2s. 7d. ($30·26) in the South-West Land Division, and £14 16s. 8d. ($29·67) in Goldfields Areas and other parts of the State. (For purposes of the basic wage, the 'Metropolitan Area' was the area comprised within a radius of fifteen miles from the General Post Office, Perth; the 'South-West Land Division' was the area so described in the Land Act, but excluding the 'Metropolitan Area'; and 'Goldfields Areas and other parts of the State' comprised the area outside the South-West Land Division. Reference to the South-West Land Division will be found on page 136.)

On 15 June 1964 the Trades and Labor Council of Western Australia, acting on behalf of registered unions, addressed to the Commission a request for an inquiry into the basic wage. A preliminary hearing was held on 3 July to consider questions of procedure, representation and related matters. The general inquiry began before the Commission in Court Session on 22 July and was completed on 14 August. Representatives of the unions and of the Western Australian Employers' Federation (Incorporated) made extensive submissions and the Crown Counsel, on behalf of the State Government, intervened in the public interest, as authorised under section 68 of the Industrial Arbitration Act. Judgment was given on 22 September. The Commission was unanimous in its conclusion that one basic wage should apply to the whole State, but was divided as to the amount of the wage. The majority view was that a weekly wage of £15 8s. ($30·80)

should be declared as appropriate to adult male workers, and an order was issued accordingly prescribing this amount for males and an amount of £11 11s. ($23·10) for females, the rates to operate on and from 22 September 1964 and to apply uniformly throughout the State.

The *Industrial Arbitration Act Amendment Act, 1966*, which came into operation on 23 December 1966, provided that the rates which were current immediately prior to the date of commencement of the Act should remain unaltered until exceeded by the basic wage for the six capital cities as declared by the Commonwealth Conciliation and Arbitration Commission, and that subsequent alterations should be made in accordance with variations of that wage. (At 23 December 1966 the State basic wage for adult males was $33·50 per week and for adult females, $25·13 per week. The corresponding Commonwealth basic wage rates for the six capital cities at the same date were $32·80 and $24·60).

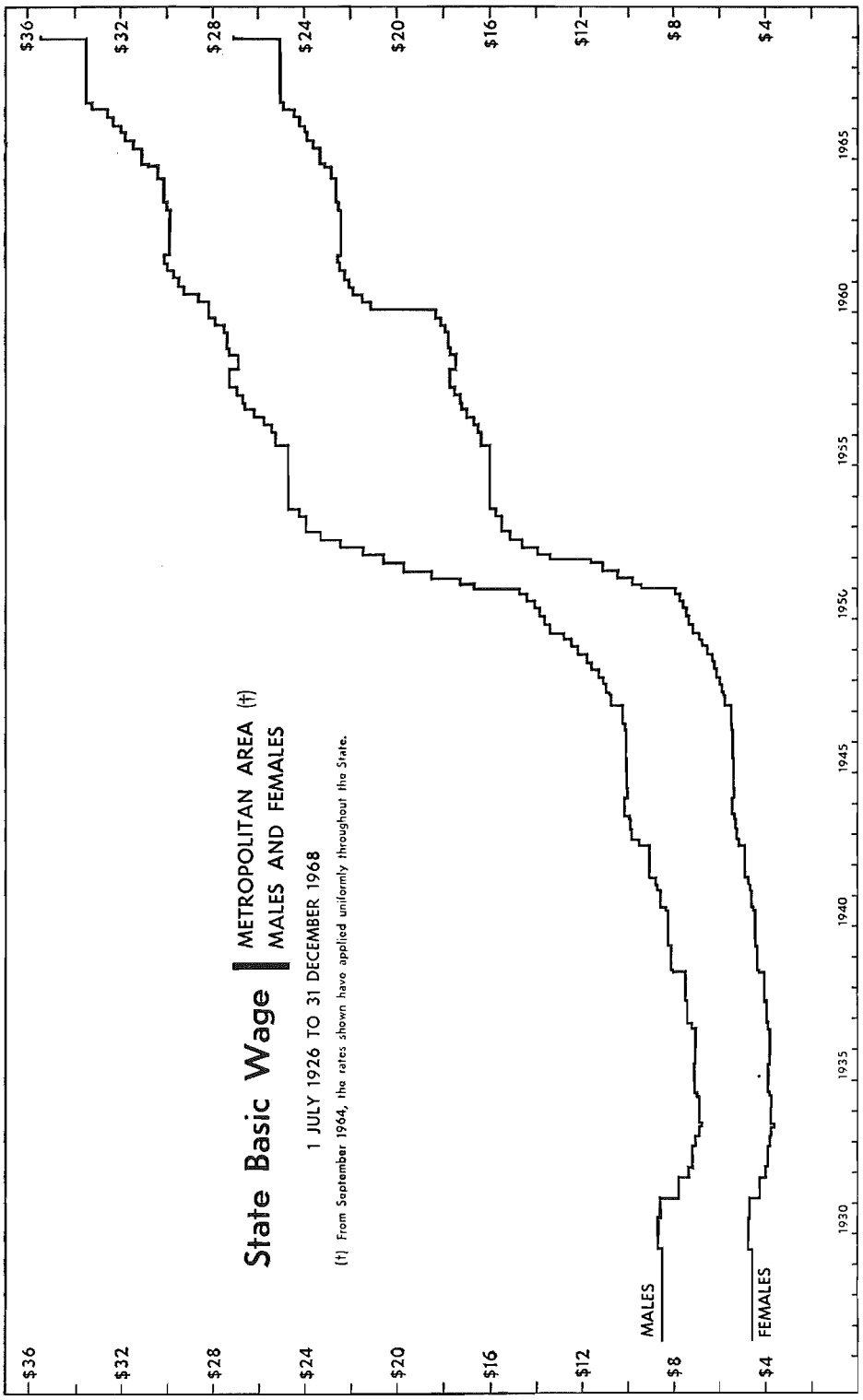
Reference is made in the preceding section *Commonwealth Basic Wage* to the decision given by the Commonwealth Conciliation and Arbitration Commission on 5 June 1967, when it announced the elimination of basic wages and margins from its awards, and the introduction of total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. This decision provided also that total wages for adult males and adult females were to be increased by $1 per week from the same date. Following this decision a number of unions in Western Australia applied to The Western Australian Industrial Commission seeking an increase of $1 per week in margins for adult males and adult females, with proportionate increases for junior workers and apprentices. The Commission delivered its judgment on 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from $36·55 to $37·55; ' that the wage rates for adult workers not in receipt of the " minimum wage " be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount '. These increases were declared to operate from the beginning of the first pay-period commencing on or after 1 July 1967.

A further increase of $1·35 per week for adult males and adult females was granted by the Commission in October 1968 to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

The *Industrial Arbitration Act Amendment Act, 1968*, operative from 22 November 1968, restores to The Western Australian Industrial Commission the power to declare a basic wage, which had been removed by the amending Act of 1966. The 1968 amendment provides that the Commission in Court Session may at any time and from time to time, by order, ' (a) determine and declare a basic wage for male workers; (b) determine and declare a basic wage for female workers; and (c) vary any basic wage for the time being in force, and any such basic wage so determined and declared or so varied shall be for all purposes, the basic wage for male workers or female workers throughout the State '.

The Act defines the term ' basic wage ' as ' that wage or that part of a wage which in the opinion of the Commission, is just and reasonable for a worker to whom it applies, without regard to the circumstances pertaining to the work upon which, or the industry in which, such worker is employed '. In determining a basic wage the Commission is required by the Act to take into consideration the amount that it considers sufficient to enable the average worker to whom that basic wage shall apply to live in reasonable comfort. Although the Commission must also consider the economic capacity of industry, it may not reduce the wage to a level below that required for the maintenance of this standard of ' reasonable comfort '.

The Act prescribes basic wage rates of $35·45 per week for adult male workers and $27·08 per week for adult female workers, to apply on and from the date of commencement of the Act (22 November 1968). These amounts comprise the sum of the basic weekly wage rates of $33·50 for males and $25·13 for females, operative from 24 October 1966 (before the Commission's power to determine basic wages was removed by the 1966 amendment to the Act), and the subsequent increases of 60 cents per week granted in June 1967 and $1·35 per week in October 1968.


State Basic Wage
METROPOLITAN AREA (†)
MALES AND FEMALES
1 JULY 1926 TO 31 DECEMBER 1968
(†) From September 1964, the rates shown have applied uniformly throughout the State.
$36
$32
$28
$24
$20
$16
$12
$8
$4
MALES
FEMALES
1930
1935
1940
1945
1950
1955
1960
1965

The Commission is required to review the basic wage, or any variation of the wage, not later than twelve months from the date on which the wage (or variation) came into operation. It is provided by the Act that any variation shall take effect ' only after the expiration of such twelve months, unless in the opinion of the Commission there are special reasons existing in the circumstances of any particular case and it is just and equitable to otherwise determine '.

On 21 November 1969, following the annual review required under the Act, the Commission increased the basic wage for adult males by $1 per week and for adult females by 80 cents per week, with effect from the beginning of the first pay-period commencing on or after 24 November 1969.

The following table shows variations, from 22 September 1964, in the State basic wage rates payable to adult male and female workers employed under State industrial awards or registered agreements, or in accordance with the provisions of the Factories and Shops Act. A table showing rates applying at 31 December of each year from 1926 is given in the *Statistical Summary from 1829* following this Chapter.

STATE BASIC WAGE—ADULT WEEKLY RATES
($)

Date of operation	Males	Females	Date of operation	Males	Females
1964—22 September	30.80	23.10	1966—25 January	32.38	24.28
26 October	31.12	23.34	2 May	32.65	24.49
			2 August	33.26	24.95
1965—26 April	31.47	23.60	24 October (*a*)	33.50	25.13
26 July	31.78	23.84	1968—22 November (*b*)	35.45	27.08
16 November	31.96	23.97	1969—24 November	36.45	27.88

(*a*) See letterpress on page 477. (*b*) Rates prescribed under the provisions of the *Industrial Arbitration Act Amendment Act, 1968.*

Equal Pay for Male and Female Workers

State Awards. The *Industrial Arbitration Act Amendment Act, 1968* requires The Western Australian Industrial Commission, on application, to insert in awards provision for equal pay for male and female workers performing work of the same or a like nature and of equal value. The Act provides that if application for equal pay is made before 30 June 1970 the difference in male and female basic wages shall be removed not later than 1 January 1972.

Commonwealth Awards. Two benches of the Commonwealth Conciliation and Arbitration Commission sat jointly from 25 February to 22 May 1969 to take evidence and hear argument on trade union claims for equal pay between the sexes. Both benches reached a common conclusion and on 19 June 1969 published their decision and reasons for their decision. The Commission stated it was prepared to implement the principle of equal pay for equal work by introducing into Commonwealth awards and determinations the principles contained in State Acts on equal pay. It decided that no increases should be granted to adult females without an examination of the work done and that implementation of equal pay should be spread over a period so that, as from 1 January 1970, implementation would be the same as that under South Australian, Western Australian and Tasmanian Acts.

Minimum Wage Rates

The basic wage, as the term implies, establishes a ' base ' to which additions may be made to provide rates actually payable in certain industries and occupations and in particular areas. Minimum rates, incorporating these additional payments, may be prescribed by awards of The Western Australian Industrial Commission, or may be negotiated by industrial agreement. These agreements are registered with the Commission and are binding upon the parties. The additions made to the basic wage rate take the form of ' margins ' and ' loadings '. Margins are amounts awarded to particular classifications of employees for features attaching to their work, such as skill, experience, arduousness and other like factors. Loadings are amounts awarded for various kinds of disabilities assoc-

iated with the performance of work, or to meet particular circumstances. They include payments such as industry loadings and other general loadings prescribed in awards, determinations or agreements for the occupation concerned.

Awards of the Commonwealth Conciliation and Arbitration Commission take cognisance of particular features or circumstances such as those mentioned above but no longer contain identifiable components in the form of basic wage, margins, and loadings (see letterpress *Commonwealth Basic Wage* on page 476).

In its decision of 8 July 1966 in the Basic Wage, Margins and Total Wages Cases of 1966, the Commonwealth Conciliation and Arbitration Commission announced that it intended to grant relief to low-wage earners by inserting a provision in awards prescribing a minimum wage. The provisions inserted in the awards state that no adult male employee shall be paid at less than the prescribed minimum rates as ordinary rates of pay in respect of the ordinary hours of work prescribed in the award. The minimum weekly wage rates prescribed were the appropriate basic wages plus $3.75 per week. As a result of this decision the minimum weekly wage as prescribed in Commonwealth awards for adult male workers in Perth became $36.55, with effect from the beginning of the first pay-period commencing on or after 11 July 1966. Subsequent increases, to $37.55, $38.90, and $41.40 became operative from the beginning of the first pay-period commencing on or after 1 July 1967, 25 October 1968, and 19 December 1969, respectively.

The statistics shown in the following table relate, in the main, to wages and hours prescribed in awards or determinations of the Commonwealth and State industrial authorities or in agreements registered with them.

The minimum wage rates and index numbers shown in the table embrace a representative range of occupations and are based on the occupation and industry structures in Australia in 1954. The weekly wage rates given in the table, and used in the compilation of the indexes, represent the lowest rates payable for a full week's work (excluding overtime), as prescribed in representative industrial awards, determinations and agreements. The hourly wage rates are obtained by relating the weekly wage rates and the weekly hours of work prescribed in awards, etc. The rural industries are excluded from the table, because of coverage difficulties.

Because the indexes are designed to measure movements in prescribed minimum rates of 'wages' as distinct from 'salaries', those awards, determinations and agreements which relate solely or mainly to salary-earners are excluded.

The wage rates shown should not be regarded as actual current averages, but as indexes expressed in money terms, indicative of trends.

A more detailed description of the minimum wage rates index and more extensive tables are published in the mimeographed statement *Minimum Wage Rates* issued by the Commonwealth Statistician, Canberra. Current figures are given in the Commonwealth Statistician's mimeographed monthly bulletin *Wage Rates and Earnings*.

A table showing minimum rates of wages payable in a wide selection of occupations in Western Australia at 30 June 1968 appears in the *Statistical Register of Western Australia for 1967-68: Part XII—Retail Prices, Wages, Employment and Miscellaneous* (pages 12-19).

WEIGHTED AVERAGE MINIMUM WEEKLY AND HOURLY WAGE RATES
WESTERN AUSTRALIA

Date	Weekly wage rates		Hourly wage rates		Index numbers (*a*)			
					Weekly wage rates		Hourly wage rates	
	Adult males	Adult females (*b*)	Adult males (*c*)	Adult females (*b*)	Males	Females (*b*)	Males (*c*)	Females (*b*)
End of June—	$	$	cents	cents				
1965	39.29	27.99	98·55	70·35	139·1	140·6	139·3	140·2
1966	42.06	29.45	105·59	74·02	148·9	147·9	149·2	147·2
1967	44.03	31.20	110·45	78·43	155·9	156·7	156·1	156·3
1968	*45.61	32.55	114·08	81·82	*161·5	163·5	161·2	163·1
1969 (*d*)	48.52	34.64	121·32	87·08	171·8	174·0	171·5	173·6

(*a*) Base of series : weighted average weekly wage rate—Australia, 1954 = 100. (*b*) Excludes mining and quarrying and building and construction. (*c*) Excludes shipping and stevedoring. (*d*) Preliminary figures; subject to revision.
* Revised.

Average Weekly Earnings

Statistics of average weekly earnings are derived from information concerning employment and wages and salaries as recorded on Pay-roll Tax returns, from other direct collections, and from estimates of the unrecorded balance. The figures relate to civilians only.

Particulars of wages and salaries paid are not available separately for males and females from these sources. Average weekly earnings have therefore been calculated in terms of male units, *i.e.* total male employees plus 55 per cent of female employees. This proportion is derived from the estimated ratio of female to male earnings in Australia. As it was not possible to estimate the ratio of female to male earnings in the several States the same ratio has been used in each State. Because the actual ratio may vary between States precise comparisons between average earnings in different States cannot be made on the basis of the figures shown in the following table.

For the purpose of this table, the term 'earnings' includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. It is important to bear in mind that the figures relate to the total wage and salary earner field and therefore comprise payments to all grades of employees from junior workers to persons at the highest levels of executive and administrative activity.

Quarterly figures corresponding to those shown in the table are published by the Commonwealth Statistician in the monthly bulletin *Wage Rates and Earnings* and in the *Monthly Review of Business Statistics*.

AVERAGE WEEKLY EARNINGS PER EMPLOYED MALE UNIT (*a*)
AUSTRALIAN STATES
($)

Year	N.S.W. (*b*)	Vic.	Qld	S.A. (*c*)	W.A.	Tas.	Aust.
1964-65	56.50	56.40	50.40	52.00	49.50	51.00	54.60
1965-66	58.60	59.20	52.50	53.80	54.10	53.80	57.00
1966-67	62.40	63.00	55.60	56.90	58.30	57.40	60.70
1967-68	66.00	66.80	58.80	60.40	62.50	61.00	64.30
1968-69	71.60	71.20	62.60	64.30	67.20	63.80	68.90

(*a*) Includes, in addition to wages at award rates, earnings of salaried employees, overtime earnings, over-award and bonus payments, and payments made in advance or retrospectively during the years specified. (*b*) Includes Australian Capital Territory. (*c*) Includes Northern Territory.

SURVEY OF WEEKLY EARNINGS AND HOURS

Sample surveys in respect of most private employers subject to Pay-roll Tax (*i.e.* those paying more than $400 per week in wages and salaries) have been conducted as at the last pay-period in October during recent years.

In addition to obtaining data for the calculation of average weekly earnings, average weekly hours paid for, and average hourly earnings, the surveys carried out in October 1966, 1967 and 1968 obtained information on overtime and ordinary-time earnings and hours, for full-time employees (other than managerial, etc. staff).

The results of the surveys are based on returns from stratified random samples of private employers subject to Pay-roll Tax. Employees in rural industry and in private domestic service are excluded because most employers in these two industries are not subject to Pay-roll Tax. Also excluded from the surveys are employees of government and semi-government authorities, and employees of religious, benevolent and other similar organisations exempt from Pay-roll Tax.

Definitions of the terms used in the following tables may be found in the mimeographed publication *Survey of Weekly Earnings and Hours, October 1968*, published by the Commonwealth Statistician, Canberra. This publication also contains further information on the construction of the sample, and more detailed tables.

The two following tables refer to the results for Western Australia.

The October 1965 Survey of Weekly Earnings was a special-purpose survey on a different basis from the surveys compared in this section and consequently figures for 1965 have been omitted from the next table.

AVERAGE EARNINGS AND HOURS (*a*)—PRIVATE EMPLOYMENT
ALL INDUSTRY GROUPS (*b*)

Particulars	October—				
	1963	1964	1966	1967	1968
	$	$	$	$	$
Average weekly earnings (*c*)—					
Adult males	47.20	49.90	60.40	65.10	73.00
Junior males	20.70	21.40	27.10	28.80	31.20
Adult females	29.50	30.50	35.10	36.20	38.60
Junior females	17.20	17.40	21.10	22.70	23.90
Average weekly hours paid for (*c*)—	hrs	hrs	hrs	hrs	hrs
Adult males	41·4	42·2	43·5	44·2	45·8
Junior males	40·4	40·8	41·0	41·1	41·5
Adult females	39·6	39·7	39·3	39·6	39·5
Junior females	39·9	39·5	39·3	39·3	39·4
Average hourly earnings (*c*)—	$	$	$	$	$
Adult males	1.14	1.18	1.39	1.47	1.59
Junior males	0.51	0.53	0.66	0.70	0.75
Adult females	0.75	0.77	0.89	0.91	0.98
Junior females	0.43	0.44	0.54	0.58	0.61

(*a*) Excludes managerial, professional and higher supervisory staff. Full-time employees only are included. (*b*) Excludes rural industry and private domestic service. (*c*) Last pay-period in October. See also letterpress immediately preceding table.

The following table analyses total earnings for Western Australia to show their overtime component in October 1967 and 1968.

AVERAGE WEEKLY OVERTIME AND ORDINARY-TIME EARNINGS (*a*)
PRIVATE EMPLOYMENT (*b*)
($)

Particulars	Average weekly overtime earnings (*a*)		Average weekly ordinary-time earnings (*a*)		Average weekly total earnings	
	October—		October—		October—	
	1967	1968	1967	1968	1967	1968
Adult males—						
Manufacturing—						
Founding, engineering, vehicles, etc.	16.80	15.20	51.30	59.00	68.00	74.30
Other	10.40	11.60	51.10	52.90	61.40	64.50
Total Manufacturing	13.00	13.10	51.10	55.40	64.10	68.40
Non-manufacturing	10·40	16·60	55·50	59·50	65·80	76·00
All industry groups (*c*)	11.40	15.20	53.70	57.80	65.10	73.00
Junior males—all industry groups (*c*)	2.10	2.90	26.70	28.30	28.80	31.20
Females—all industry groups (*c*)						
Adult	1.00	1.30	35.20	37.30	36.20	38.60
Junior	0.50	0.60	22.20	23.30	22.70	23.90

(*a*) Averages for all employees represented in the survey. (*b*) Excludes managerial, professional and higher supervisory staff. Full-time employees only are included. (*c*) Excludes rural industry, and private domestic service.

HOURS OF WORK AND LEAVE PROVISIONS

Standard Hours of Work. In the fixation of weekly wage rates most industrial tribunals prescribe the number of hours constituting a full week's work for the wages specified.

Following applications for the introduction of a working week of forty hours, in place of the existing general standard of forty-four hours, the Commonwealth Court of Conciliation and Arbitration began hearing evidence in October 1945. In its judgment

given on 8 September 1947 the Court granted the reduction to forty hours from the beginning of the first pay-period commencing in January 1948. On 6 November 1947 the Western Australian Court of Arbitration approved that, on application, provision for a working week of forty hours could be incorporated in awards of the Court with effect from 1 January 1948.

The forty-hour week has operated in Australia generally from 1 January 1948 (in New South Wales from 1 July 1947). However, the number of hours constituting a full week's work (excluding overtime) differs between occupations and/or between States. The weighted average standard hours of work (excluding overtime) prescribed in awards, determinations and agreements for a full working week, in respect of adult male workers in all industry groups except Rural, and Shipping and stevedoring, at 30 June 1969, were: New South Wales, 39·95; Victoria, 39·97; Queensland, 39·98; South Australia, 39·96; Western Australia, 39·89; Tasmania, 39·97; Australia, 39·96. Corresponding figures for adult female workers at 30 June 1969 were: New South Wales, 39·53; Victoria, 39·81; Queensland, 39·70; South Australia, 39·77; Western Australia, 39·78; Tasmania, 39·63; Australia, 39·67.

Annual Leave and Public Holidays. On 18 April 1963 the Commonwealth Conciliation and Arbitration Commission gave a judgment which had the effect of granting a general increase from two weeks to three weeks in the period of paid annual leave for employees covered by Commonwealth awards.

Following a general inquiry concerning annual leave and public holidays, the Western Australian Court of Arbitration in June 1963 adopted three weeks as the new standard for the normal period of annual leave in State awards, with four weeks for seven-day shift workers. Existing awards and agreements which already provided annual leave in excess of this standard were to be examined separately to ascertain whether special circumstances existed to justify leave greater than the normal standard.

In the inquiry the State Government sought a reduction in the number of public holidays and a review of other conditions where these were more favourable than the Court's standard. Private employers opposed any increase in annual leave but, alternatively, submitted that, if there was to be an increase, then the new standard should be two weeks and four days per annum or the number of public holidays in each year should be reduced by one. Both these submissions were rejected and the standard number of public holidays was retained at ten with the provision that, where an award provided for more than ten public holidays a year, that award, unless the union consented to a reduction to ten, would be excluded from the order amending the annual leave provisions until it was established that special circumstances justified the continuance of the greater number of holidays.

In November 1963 the Court refused an application by employers for the right to split the annual leave into two parts, since it decided to follow the decision of most other State tribunals and allow the additional leave in conformity with conditions similar to those prescribed by the Commonwealth Conciliation and Arbitration Commission. The right to split the leave would be allowed by the Court only in exceptional circumstances, unless all the parties concerned agreed to the inclusion of such a provision.

Long Service Leave. The *Long Service Leave Act, 1958-1964* (State) confers entitlement to long service leave with pay on employees for whom such leave is not otherwise provided. Entitlement accrues only in relation to continuous service with one employer, but continuity of service is not affected by the transfer of a business from one employer to another. Leave of thirteen weeks on ordinary pay is granted in respect of the first fifteen years of service. For each subsequent ten years the entitlement is eight and two-thirds weeks, with *pro rata* conditions applying in the case of death or termination of employment for any reason other than serious misconduct. An employee who has completed at least ten years' service but less than fifteen years is entitled to *pro rata* leave, on the basis of thirteen weeks for fifteen years, if his employment is terminated by death; by the employer for any reason other than serious misconduct; or by the employee on account

of sickness, injury, or domestic or other pressing necessity. An employee forfeits his right to long service leave if he engages in alternative employment for reward during the period of leave.

WORKERS' COMPENSATION

The *Workers' Compensation Act, 1912-1967* (State) provides compensation to workers in Western Australia for injuries suffered in the course of their employment, for death resulting from such injuries, and for disabilities due to specified industrial diseases associated with their employment. The provisions of the Act do not extend to employees of the Commonwealth Government, for whom compensation is provided by the *Commonwealth Employees' Compensation Act* 1930-1969.

Every employer, other than a self-insurer, is required to effect insurance with an approved insurer for the full amount of the liability to pay compensation under the Act to all workers in his employment.

The Act establishes a Workers' Compensation Board of three members, including a chairman, appointed by the Governor. The chairman must be a legal practitioner of not less than seven years' practice and standing. Of the remaining members, one is nominated by the Western Australian Employers' Federation (Incorporated), and one by the Trades and Labor Council of Western Australia. The Board has exclusive jurisdiction to inquire into, hear, and determine all questions and matters arising under the Act, and its actions and decisions are final, except that where any question of law arises in any proceedings before the Board, it may state a case for the decision of the Full Court of the Supreme Court.

It is provided by section 4 (5) of the Act that the amount of payments, allowances and benefits under the Act shall be varied in accordance with movements in the State basic wage payable to adult male workers. In the following paragraphs the amounts shown are those which were in operation at 31 December 1969.

Where total or partial incapacity for work results from the injury, the maximum weekly payment during the period of incapacity is, in the case of an adult worker whose average weekly earnings are not less than the basic wage, $26·10 for a male and $19·60 for a female, where there are no dependants. Where there are dependants, the maximum payment for both male and female workers is $39·20. In the case of a worker receiving less than the basic wage and without dependants, the maximum payment is derived by applying to $26·10 (or $19·60 for a female) the ratio which his (or her) average weekly earnings bear to the basic wage. Where there are dependants, the maximum payment is equal to the amount of the average weekly earnings.

The total liability of the employer in respect of weekly payments, including payments for dependants, is limited to $10,881. Additional compensation is payable up to a maximum of $1,632 (or more, if the Board finds that, in particular circumstances, this amount is inadequate) for expenses incurred in respect of first aid and ambulance services, medicines, medical or surgical attendance, hospital treatment, and the like. In the event of the death of the worker, funeral expenses are compensable up to a maximum of $163.

The Act provides for compensation in the form of a lump-sum payment, up to a maximum of $10,881, in respect of specified injuries resulting in such disabilities as loss of sight, hearing or mental powers, or loss of a limb or limbs.

Where death results from the injury and the worker leaves any dependants who were wholly dependent on his earnings, the maximum amount of compensation is $10,881, together with an additional sum of $240 in respect of each dependent child or step-child under sixteen years of age not being an ex-nuptial child. It is provided that if a worker leaves a widow, a mother, or a dependent child or step-child under sixteen years of age

wholly dependent on his earnings, the minimum payment shall be $2,537 plus $240 for each dependent child. If a worker dies leaving no dependants, reasonable expenses in connection with medical attendance and burial are payable to the person by whom the expenses were properly incurred.

Disability or death caused by certain specified industrial diseases due to the nature of a worker's employment is compensable at the same rates and under the same conditions as those applying in the case of injury.

INDUSTRIAL ACCIDENTS

The collection of information required for detailed analysis of industrial accidents occurring in Western Australia commenced on 1 July 1961. From that date all insurers and self-insurers have been required to submit a report to the Workers' Compensation Board in respect of each claim for workers' compensation as soon as the claim is closed. Only accidents coming within the scope of the Workers' Compensation Act are included in the statistics, which therefore exclude industrial accidents resulting in the death of, or injury to, self-employed persons and all Commonwealth Government employees. As the statistics relate only to accidents, particulars of cases of industrial disease are excluded.

With few exceptions, an accident to an employee while travelling between his place of residence and place of employment was not compensable in Western Australia until 14 December 1964, when the *Workers' Compensation Act Amendment Act, 1964* came into operation. From that date, the compensation provisions have been extended generally to include such cases. These cases are not, however, included in the statistics which are intended to cover only those accidents occurring at the work site or in the course of the worker's normal duties. (During the year ended 30 June 1968, 149 claims were reported closed in respect of 'journey' cases involving loss of work for one week or more. The total time lost was 904 weeks and the cost of claims amounted to $40,690.)

For the purpose of the statistics, each claim is regarded as a separate industrial accident and data are prepared from reports of claims closed during the year under review. The item 'cost of claims' refers to *total* payments made (principally in the form of compensation for loss of wages, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore does not necessarily represent amounts actually paid in that year. Similarly, 'time lost' refers to *total* time lost (*i.e.* from date of injury) in respect of claims closed during the year.

The tables in this section include particulars of industrial accidents resulting in death or absence from work of at least one week, *i.e.* a week of five working days. In respect of reopened claims, the additional time lost and additional costs are included in the tables but, to avoid duplication, such cases (of which there were 2,961 in 1967-68) have been excluded from the numbers of accidents shown.

INDUSTRIAL ACCIDENTS (*a*)—NUMBER, TIME LOST, AND COST OF CLAIMS (*b*)

Particulars		1963-64	1964-65	1965-66	1966-67	1967-68
Number of accidents—						
Fatal		28	32	31	21	18
Non-fatal		14,257	13,903	14,548	14,323	13,812
Time lost (*c*) (weeks)—						
Total		59,039	56,095	59,403	55,506	56,469
Average per accident		4·1	4·0	4·1	3·9	4·1
Cost of claims (*b*)—						
Fatal accidents	$'000	117	161	214	85	80
Non-fatal accidents	$'000	2,756	2,723	3,189	3,071	3,287
Total	$'000	2,873	2,884	3,403	3,156	3,367
Average per non-fatal accident	$	193	196	219	214	238

(*a*) Accidents resulting in absence from work of one week or more. (*b*) Refers to *total* payments made (principally compensation for wages lost, medical expenses, and lump-sum settlements) in respect of claims closed during the year, and therefore not necessarily to amounts actually paid in that year. (*c*) Total time lost (*i.e.* from date of injury) in respect of claims closed during the year.

Statistics in greater detail, as well as analyses according to additional characteristics, are available in the publications, *Industrial Accidents (Series A)*, which relates to accidents resulting in death or absence from work for one day or more, and *Industrial Accidents (Series B)*, relating to accidents resulting in death or absence from work for one week or more. These publications, which are in mimeographed form, are issued annually by the Western Australian Office of the Commonwealth Bureau of Census and Statistics.

The following table contains an analysis, according to industry group, of industrial accidents in Western Australia for the year ended 30 June 1968. Accidents have been classified according to the Classification of Industries used in the 1966 Census of Population. The table on page 492 gives an indication of the nature of the sub-groups included in the several industry groups.

INDUSTRIAL ACCIDENTS (*a*)—NUMBER, TIME LOST, AND COST OF CLAIMS (*b*)
INDUSTRY GROUPS : 1967-68

Industry group	Fatal accidents		Non-fatal accidents			
	Number	Cost of claims (*b*)	Number	Per cent of total	Time lost (*c*)	Cost of claims (*b*)
		$'000			weeks	$'000
Primary production—						
Mining and quarrying	3	20	823	6·0	3,538	234
Other	....	....	1,040	7·5	4,227	238
Manufacturing	2	(*e*)	5,002	36·2	18,892	1,147
Electricity, gas, water and sanitary services (*d*)	....	....	218	1·6	755	41
Building and construction	5	21	2,202	15.9	9,777	567
Transport, storage and communication	3	11	1,412	10·2	6,797	362
Finance and property	....	....	23	0·2	210	11
Commerce	3	19	1,692	12·3	5,701	344
Public authority (n.e.i.) and defence services ; community and business services	1	8	645	4·7	3,154	153
Amusement, hotels, cafes, personal service, etc.	1	(*e*)	503	3·6	2,253	125
Other	....	....	252	1·8	1,165	65
Total	18	80	13,812	100·0	56,469	3,287

(*a*) Accidents resulting in absence from work of one week or more. (*b*) See note (*b*) to previous table. (*c*) See note (*c*) to previous table. (*d*) Production, supply and maintenance. (*e*) Less than $500.

The following table gives a classification, according to duration of time lost, of industrial accidents in Western Australia for the year ended 30 June 1968.

INDUSTRIAL ACCIDENTS (*a*)—DURATION OF TIME LOST : 1967-68

Duration of time lost (weeks)	Males		Females		Total	
	Number	Time lost (weeks)	Number	Time lost (weeks)	Number	Time lost (weeks)
1 and under 2	6,474	8,270	595	761	7,069	9,031
2 ,, ,, 4	3,366	8,735	295	758	3,661	9,493
4 ,, ,, 6	1,142	5,377	97	465	1,239	5,842
6 ,, ,, 8	615	4,126	37	252	652	4,377
8 ,, ,, 13	614	6,020	45	455	659	6,475
13 ,, ,, 26	327	5,765	24	423	351	6,188
26 ,, ,, 52	121	4,261	10	319	131	4,579
52 ,, ,, 104	36	2,475	5	289	41	2,763
104 ,, ,, 156	6	708	....	....	6	708
156 and over	2	326	1	184	3	510
Reopened claims (*b*)	....	6,138	....	364	....	6,503
Total	12,703	52,199	1,109	4,269	13,812	56,469

(*a*) Non-fatal accidents resulting in absence from work of one week or more. (*b*) Additional time lost which cannot be allocated to appropriate groups. The number of reopened claims reported was 2,961.

Chapter X—continued

Part 2—Employment

NOTE. In addition to the employment data appearing in this Part, references to the numbers of persons engaged in particular activities are to be found elsewhere in the Year Book. In Chapter V, for example, Part 1—*Education* shows numbers engaged in teaching, Part 3—*Health Services, Hospitals and Homes for the Aged* contains details of hospital staffs, and employment in building appears in Part 4—*Housing and Building*. In Chapter VIII, Part 1—*Primary Production* gives male employment on rural holdings, at mines and in fishing, and Part 2—*Secondary Production* includes tables relating wholly, or in part, to employment in factories. Chapter IX, Part 3—*Transport* shows numbers engaged in various types of transport undertakings.

All tables in this Part which contain information compiled from census schedules exclude particulars of full-blood Aborigines, as required by section 127 (now repealed) of the Australian Constitution; see letterpress Aborigines *on page 125.*

The most detailed and comprehensive statistics of employment of the population are those which are derived from the periodic Population Census. Among the most useful of the tabulations based on these enumerations are those which classify the population according to occupational status and industry.

THE WORK FORCE

It is customary in modern census practice to distinguish between the economically active and inactive sectors of the community on the basis of those ' In the Work Force ' and those ' Not in the Work Force'.

The *work force* comprises all persons engaged in an industry, business, trade, or service, and includes persons who were not working at the time of the census. It includes employers, the self-employed (*i.e.* persons working on own account but not employing others), employees on wage or salary, and unpaid helpers (other than those usually working in such activities for less than fifteen hours per week).

Persons *not in the work force* include children not attending school; full-time students and children attending school; persons of independent means; those engaged in home duties; pensioners and annuitants; and inmates of institutions.

The comprehensive tables resulting from the census include detailed analyses of the work force according to such characteristics as age, marital status, religion, birthplace, occupational status, industry and occupation. For the purpose of this Chapter, only a selection of the tables, in condensed form, relating to occupational status, industry and occupation have been included.

At the Census of 30 June 1966 there were 246,155 males in the work force, representing 57·69 per cent of the total male population.

The number of females in the work force at the 1966 Census was 93,424, or 22·79 per cent of the female population. Of this total, 45,286, equivalent to 48·47 per cent of females in the work force, were married women, including women married but permanently separated.

The 1966 Census work force statistics are not strictly comparable with those of earlier censuses. For a detailed explanation of the new approach adopted at the 1966 Census, the reader is referred to *Census Bulletin No. 5.1—Summary of Population: Western Australia*, issued November 1967 by the Commonwealth Statistician, Canberra. The net effect of the new definition is to include approximately 8,100 additional persons in the Western Australian work force, a proportional increase of approximately 2·4 per cent.

Classification according to Occupational Status

POPULATION CLASSIFIED ACCORDING TO OCCUPATIONAL STATUS CENSUS, 30 JUNE 1966

Occupational status	Males	Females	Persons	Percentage of population		
				Males	Females	Persons
In work force—						
Employed—						
Employer	21,383	4,700	26,083	5·01	1·15	3·12
Self-employed	25,136	4,689	29,825	5·89	1·14	3·56
Employee (on wage or salary)	195,704	79,661	275,365	45·87	19·43	32·91
Helper (not on wage or salary)	994	2,310	3,304	0·23	0·56	0·39
Total Employed	243,217	91,360	334,577	57·00	22·28	39·99
Unemployed	2,938	2,064	5,002	0·69	0·50	0·60
Total in work force	246,155	93,424	339,579	57·69	22·79	40·59
Not in work force—						
Child not at school	48,732	46,195	94,927	11·42	11·27	11·35
Child attending school or full-time student	97,401	90,728	188,129	22·83	22·13	22·49
Mainly dependent on pension or superannuation	22,374	32,163	54,537	5·24	7·84	6·52
Of independent means	3,626	3,402	7,028	0·85	0·83	0·84
Home duties	...	137,269	137,269	...	33·48	16·41
Inmates of institutions	3,094	3,166	6,260	0·73	0·77	0·75
Others not in work force	5,309	3,635	8,944	1·24	0·89	1·07
Total not in work force	180,536	316,558	497,094	42·31	77·21	59·41
GRAND TOTAL	426,691	409,982	836,673	100·00	100·00	100·00

POPULATION ACCORDING TO OCCUPATIONAL STATUS—AUSTRALIA CENSUS, 30 JUNE 1966

Occupational status	N.S.W.	Vic.	Qld	S.A.	W.A.	Tas.	N.T.	A.C.T.	Australia
MALES									
In work force—									
Employed—									
Employer	83,466	67,236	44,111	23,747	21,383	8,245	815	1,388	250,391
Self-employed	106,723	92,302	49,463	31,135	25,136	9,162	601	1,286	315,808
Employee (on wage or salary)	1,058,213	777,217	379,207	259,105	195,704	87,572	12,796	27,304	2,797,118
Helper (not on wage or salary)	4,564	3,333	2,486	1,167	994	432	26	46	13,048
Total Employed	1,252,966	940,088	475,267	315,154	243,217	105,411	14,238	30,024	3,376,365
Unemployed	18,421	10,139	7,964	4,464	2,938	1,147	162	214	45,449
Total in work force	1,271,387	950,227	483,231	319,618	246,155	106,558	14,400	30,238	3,421,814
Not in work force	853,075	663,677	360,666	228,912	180,536	80,832	7,108	19,739	2,394,545
Total males	2,124,462	1,613,904	843,897	548,530	426,691	187,390	21,508	49,977	5,816,359
FEMALES									
In work force—									
Employed—									
Employer	19,774	16,747	10,517	6,228	4,700	1,759	225	271	60,221
Self-employed	23,170	20,008	11,306	7,205	4,689	1,644	134	263	68,419
Employee (on wage or salary)	474,185	374,625	149,378	111,197	79,661	35,451	4,171	12,774	1,241,442
Helper (not on wage or salary)	12,566	8,191	5,483	2,613	2,310	940	76	138	32,317
Total Employed	529,695	419,571	176,684	127,243	91,360	39,794	4,606	13,446	1,402,399
Unemployed	13,070	7,250	4,954	3,563	2,064	971	138	232	32,242
Total in work force	542,765	426,821	181,638	130,806	93,424	40,765	4,744	13,678	1,434,641
Not in work force	1,566,595	1,178,801	638,150	412,539	316,558	143,280	11,181	32,358	4,299,462
Total females	2,109,360	1,605,622	819,788	543,345	409,982	184,045	15,925	46,036	5,734,103

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—MALES
CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15–19	20–24	25–34	35–44	45–54	55–64	65 and over	
Employers—								
Never married	186	473	555	256	183	132	42	1,827
Married	6	376	3,711	5,504	5,109	3,358	854	18,918
Married but permanently separated	....	2	33	69	72	51	19	246
Widowed	....	1	6	24	45	74	87	237
Divorced	1	....	17	36	53	35	13	155
Total	193	852	4,322	5,889	5,462	3,650	1,015	21,383
Self-employed—								
Never married	575	1,234	1,111	602	450	414	144	4,530
Married	11	652	4,512	5,488	4,336	3,544	1,100	19,643
Married but permanently separated	....	5	59	92	87	65	29	337
Widowed	....	1	2	22	48	142	139	354
Divorced	....	1	23	76	70	79	23	272
Total	586	1,893	5,707	6,280	4,991	4,244	1,435	25,136
Employees (on wage or salary)—								
Never married	26,456	17,305	9,448	4,468	2,783	2,054	372	62,886
Married	422	8,127	31,008	35,293	27,719	19,600	2,407	124,576
Married but permanently separated	3	133	722	1,038	986	667	103	3,652
Widowed	6	15	59	230	534	983	325	2,152
Divorced	8	28	302	660	765	607	68	2,438
Total	26,895	25,608	41,539	41,689	32,787	23,911	3,275	195,704
Helpers (not on wage or salary)—								
Never married	402	150	42	11	12	25	27	669
Married	....	19	30	31	41	57	77	255
Married but permanently separated	....	1	1	2	....	9	4	17
Widowed	....	....	....	....	3	6	30	39
Divorced	....	....	1	1	2	3	7	14
Total	402	170	74	45	58	100	145	994
Total employed—								
Never married	27,619	19,162	11,156	5,337	3,428	2,625	585	69,912
Married	439	9,174	39,261	46,316	37,205	26,559	4,438	163,392
Married but permanently separated	3	141	815	1,201	1,145	792	155	4,252
Widowed	6	17	67	276	630	1,205	581	2,782
Divorced	9	29	343	773	890	724	111	2,879
TOTAL EMPLOYED	28,076	28,523	51,642	53,903	43,298	31,905	5,870	243,217
Unemployed—								
Never married	533	351	263	136	89	80	20	1,472
Married	6	85	278	329	236	232	58	1,224
Married but permanently separated	....	3	24	36	31	20	4	118
Widowed	....	3	1	6	14	21	9	54
Divorced	....	2	8	16	25	15	4	70
Total Unemployed	539	444	574	523	395	368	95	2,938
Total in work force—								
Never married	28,152	19,513	11,419	5,473	3,517	2,705	605	71,384
Married	445	9,259	39,539	46,645	37,441	26,791	4,496	164,616
Married but permanently separated	3	144	839	1,237	1,176	812	159	4,370
Widowed	6	20	68	282	644	1,226	590	2,836
Divorced	9	31	351	789	915	739	115	2,949
TOTAL IN WORK FORCE	28,615	28,967	52,216	54,426	43,693	32,273	5,965	246,155
Not in work force—								
Never married	12,090	1,920	873	572	586	1,199	2,564	(a) 19,804
Married	7	133	475	753	1,086	3,803	14,366	20,623
Married but permanently separated	1	9	34	80	138	251	651	1,164
Widowed	1	1	5	19	58	354	4,378	4,816
Divorced	....	2	20	54	93	216	407	792
Total not in work force	12,099	2,065	1,407	1,478	1,961	5,823	22,366	(a) 47,199
Total Males—								
Never married	40,242	21,433	12,292	6,045	4,103	3,904	3,169	(a) 91,188
Married	452	9,392	40,014	47,398	38,527	30,594	18,862	185,239
Married but permanently separated	4	153	873	1,317	1,314	1,063	810	5,534
Widowed	7	21	73	301	702	1,580	4,968	7,652
Divorced	9	33	371	843	1,008	955	522	3,741
GRAND TOTAL	40,714	31,032	53,623	55,904	45,654	38,096	28,331	(a) 293,354

(a) Excludes 43,524 males aged 0–4 years, 45,791 males aged 5–9 years and 44,022 males aged 10–14 years not in the work force.

OCCUPATIONAL STATUS, MARITAL STATUS AND AGE—FEMALES CENSUS, 30 JUNE 1966

Occupational status and marital status	Age last birthday (years)							Total (a)
	15–19	20–24	25–34	35–44	45–54	55–64	65 and over	
Employers—								
Never married	8	24	24	22	44	50	16	188
Married	7	122	869	1,328	1,122	497	58	4,003
Married but permanently separated	....	....	5	21	18	13	4	61
Widowed	....	1	3	24	113	154	81	376
Divorced	....	....	4	24	20	23	1	72
Total	15	147	905	1,419	1,317	737	160	4,700
Self-employed—								
Never married	38	44	30	35	61	83	42	333
Married	10	186	907	1,145	989	509	87	3,833
Married but permanently separated	....	3	13	23	30	21	2	92
Widowed	....	....	5	35	79	132	95	346
Divorced	....	....	7	19	38	18	3	85
Total	48	233	962	1,257	1,197	763	229	4,689
Employees (on wage or salary)—								
Never married	23,301	9,117	3,330	1,594	1,473	1,249	339	40,403
Married	730	4,719	7,157	10,165	6,831	2,215	176	31,993
Married but permanently separated	24	195	507	748	705	277	29	2,485
Widowed	6	14	84	402	1,130	1,157	317	3,110
Divorced	2	23	260	532	541	280	32	1,670
Total	24,063	14,068	11,338	13,441	10,680	5,178	893	79,661
Helpers (not on wage or salary)—								
Never married	159	55	29	17	10	11	5	286
Married	15	127	413	508	500	259	60	1,882
Married but permanently separated	....	3	12	10	4	4	4	37
Widowed	....	1	3	2	12	33	34	85
Divorced	....	1	5	4	5	5	....	20
Total	174	187	462	541	531	312	103	2,310
Total employed—								
Never married	23,506	9,240	3,413	1,668	1,588	1,393	402	41,210
Married	762	5,154	9,346	13,146	9,442	3,480	381	41,711
Married but permanently separated	24	201	537	802	757	315	39	2,675
Widowed	6	16	95	463	1,334	1,476	527	3,917
Divorced	2	24	276	579	604	326	36	1,847
TOTAL EMPLOYED	24,300	14,635	13,667	16,658	13,725	6,990	1,385	91,360
Unemployed—								
Never married	663	228	82	18	16	15	....	1,022
Married	47	167	219	211	99	28	10	781
Married but permanently separated	4	17	21	36	33	8	....	119
Widowed	....	3	2	10	31	31	17	94
Divorced	....	2	10	13	12	9	2	48
Total Unemployed	714	417	334	288	191	91	29	2,064
Total in work force—								
Never married	24,169	9,468	3,495	1,686	1,604	1,408	402	42,232
Married	809	5,321	9,565	13,357	9,541	3,508	391	42,492
Married but permanently separated	28	218	558	838	790	323	39	2,794
Widowed	6	19	97	473	1,365	1,507	544	4,011
Divorced	2	26	286	592	616	335	38	1,895
TOTAL IN WORK FORCE	25,014	15,052	14,001	16,946	13,916	7,081	1,414	93,424
Not in work force—								
Never married	11,191	1,099	724	557	625	1,209	2,555	(a) 17,960
Married	2,356	12,134	34,202	32,490	26,989	20,116	12,274	140,561
Married but permanently separated	14	144	556	697	568	618	595	3,192
Widowed	2	22	179	531	1,743	5,043	18,603	26,123
Divorced	3	25	180	300	404	513	454	1,879
Total not in work force	13,566	13,424	35,841	34,575	30,329	27,499	34,481	(a)189,715
Total Females—								
Never married	35,360	10,567	4,219	2,243	2,229	2,617	2,957	(a) 60,192
Married	3,165	17,455	43,767	45,847	36,530	23,624	12,665	183,053
Married but permanently separated	42	362	1,114	1,535	1,358	941	634	5,986
Widowed	8	41	276	1,004	3,108	6,550	19,147	30,134
Divorced	5	51	466	892	1,020	848	492	3,774
GRAND TOTAL	38,580	28,476	49,842	51,521	44,245	34,580	35,895	(a)283,139

(a) Excludes 41,286 females aged 0–4 years, 43,428 females aged 5–9 years and 42,129 females aged 10–14 years not in the work force.

Classification according to Industry

For census purposes, industry may be defined as any single *branch of productive activity, trade or service.* It is concerned with the activities of persons, firms or businesses *considered as a group* producing the same commodity, performing the same process or providing the same service. All persons engaged in any such branch of economic activity are classified industrially as belonging to that particular branch irrespective of their personal occupation within the industry. Examples are: Mining, which includes, in addition to miners and prospectors, such persons as laboratory technicians, transport workers and office staff employed by mining companies; Shipping, which covers staff members of shipping companies and agencies, as well as ships' crews; professional activities such as Medicine, Law and Architecture which include not only qualified practitioners but also persons employed by them as, for example, receptionists, law clerks and draftsmen.

Classification according to industry at the 1966 Census has been made on the basis of the *Classification and Classified List of Industries—Revised: June 1966*, published by the Commonwealth Statistician, Canberra. The Classification divides the work force into 14 Major Groups which, in turn, are divided into 53 Sub-groups and 342 Industry Categories.

In the following table, the work force at 30 June 1966 is classified according to the main industrial groups such as Primary Production; Mining and Quarrying; Manufacturing; and so on. It should be noted that the particulars shown under Public Authority Activities (n.e.i.) are residual figures comprising those persons in the administrative sphere of general government, local government and foreign consular services who have not been classified elsewhere. They do not, therefore, represent the total number of persons engaged in or attached to all fields of government service, Commonwealth, State or Local.

INDUSTRY AND OCCUPATIONAL STATUS OF THE WORK FORCE
CENSUS, 30 JUNE 1966

Industry group	In work force					
	Employed				Unemployed	Total in work force
	Employer	Self-employed	Employee (on wage or salary)	Helper (not on wage or salary)		
MALES						
Primary production	8,260	14,052	13,555	727	370	36,964
Mining and quarrying	58	185	7,665	9	104	8,021
Manufacturing	2,018	1,347	46,817	49	314	50,545
Electricity, gas, water and sanitary services	25	18	5,437	2	26	5,508
Building and construction	2,613	3,024	27,758	26	465	33,886
Transport and storage	758	2,035	19,168	12	145	22,118
Communication	....	....	5,680	3	15	5,698
Finance and property	361	511	6,460	9	10	7,351
Commerce	4,392	2,416	29,779	67	221	36,875
Public authority (n.e.i.) and defence services	....	....	10,843	....	43	10,886
Community and business services (including professional)	1,519	411	15,777	48	67	17,822
Amusement, hotels, cafes, personal service, etc.	1,340	1,072	5,644	29	90	8,175
Other (*a*)	39	65	1,121	13	1,068	2,306
Total males in work force	21,383	25,136	195,704	994	2,938	246,155
FEMALES						
Primary production	1,248	1,949	1,960	1,294	23	6,474
Mining and quarrying	2	1	306	1	....	310
Manufacturing	347	271	9,517	84	129	10,348
Electricity, gas, water and sanitary services	4	4	334	3	1	346
Building and construction	205	54	862	55	5	1,181
Transport and storage	114	139	1,478	45	8	1,784
Communication	....	....	1,326	3	12	1,341
Finance and property	51	78	4,250	17	21	4,417
Commerce	1,601	1,164	20,884	335	217	24,201
Public authority (n.e.i.) and defence services	....	....	3,022	....	30	3,052
Community and business services (including professional)	189	347	23,527	84	225	24,372
Amusement, hotels, cafes, personal service, etc.	909	608	10,461	189	206	12,373
Other (*a*)	30	74	1,734	200	1,187	3,225
Total females in work force	4,700	4,689	79,661	2,310	2,064	93,424

(*a*) Comprises the groups *Other industries* and *Industry inadequately described or not stated.*

INDUSTRY OF THE POPULATION
CENSUS, 30 JUNE 1966

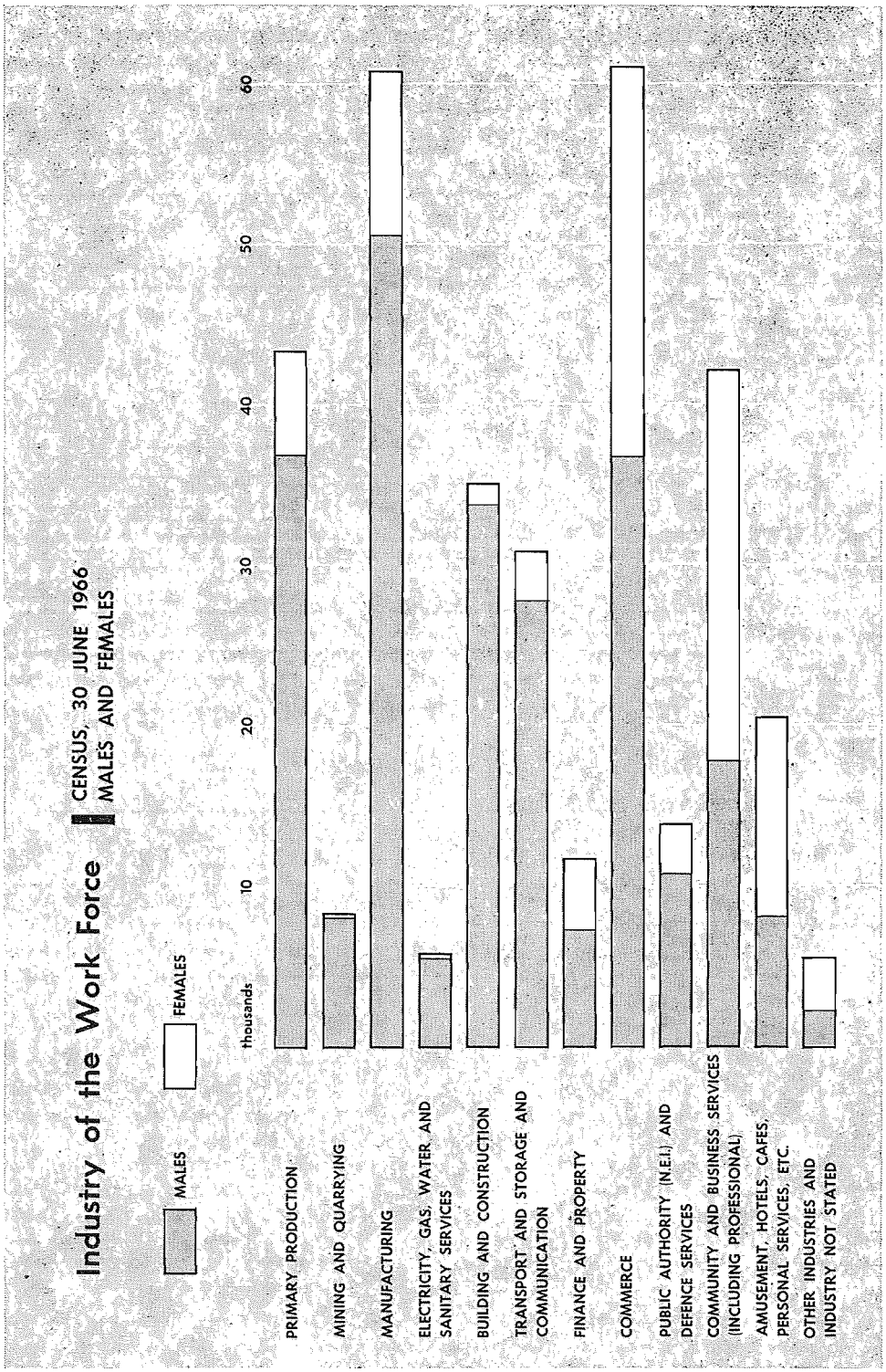
Industry group and sub-group (*a*)	Males	Females	Persons		
			Number	Percentage of—	
				Work force	Population
Primary production—					
Rural industries	34,267	6,375	40,642	11·97	4·86
Other primary production (*b*)	2,697	99	2,796	0·82	0·33
Total, Primary production	36,964	6,474	43,438	12·79	5·19
Mining and quarrying	8,021	310	8,331	2·45	1·00
Manufacturing—					
Cement, bricks, glass and stone	3,507	289	3,796	1·12	0·45
Founding, engineering and metal working	14,795	1,606	16,401	4·83	1·96
Manufacture, assembly and repair of ships, vehicles, and parts	8,337	369	8,706	2·56	1·04
Food, drink and tobacco	7,112	2,610	9,722	2·86	1·16
Sawmilling, wood products (other than furniture)	5,057	316	5,373	1·58	0·64
Paper and paper products, printing, packaging, bookbinding and photography	3,610	1,396	5,006	1·47	0·60
Other and undefined	8,127	3,762	11,889	3·50	1·42
Total, Manufacturing	50,545	10,348	60,893	17·93	7·28
Electricity, gas, water and sanitary services (*c*)	5,508	346	5,854	1·72	0·70
Building and construction—					
Construction and repair of buildings	20,625	931	21,556	6·35	2·58
Construction works (other than buildings)	13,261	250	13,511	3·98	1·61
Total, Building and construction	33,886	1,181	35,067	10·33	4·19
Transport and storage—					
Road transport	8,648	972	9,620	2·83	1·15
Rail and air transport	7,614	518	8,132	2·39	0·97
Other transport ; storage	5,856	294	6,150	1·81	0·74
Total, Transport and storage	22,118	1,784	23,902	7·04	2·86
Communication	5,698	1,341	7,039	2·07	0·84
Finance and property—					
Banking	3,398	1,674	5,072	1·49	0·61
Insurance	2,003	1,413	3,416	1·01	0·41
Other finance and property	1,950	1,330	3,280	0·97	0·39
Total, Finance and property	7,351	4,417	11,768	3·47	1·41
Commerce—					
Wholesale trade	13,774	4,612	18,386	5·41	2·20
Livestock and primary produce dealing, etc.	3,365	727	4,092	1·21	0·49
Retail trade	19,736	18,862	38,598	11·37	4·61
Total, Commerce	36,875	24,201	61,076	17·99	7·30
Public authority (n.e.i.) and defence services	10,886	3,052	13,938	4·10	1·67
Community and business services (including professional)—					
Health, hospitals, etc.	4,295	12,084	16,379	4·82	1·96
Education	6,477	7,969	14,446	4·25	1·73
Other (including professional)	7,050	4,319	11,369	3·35	1·36
Total, Community and business services	17,822	24,372	42,194	12·43	5·04
Amusement, hotels and other accommodation, cafes, etc. (*d*)—					
Amusement, sport and recreation	2,737	1,234	3,971	1·17	0·47
Hotels, boarding houses and other accommodation, restaurants	3,171	6,616	9,787	2·88	1·17
Other personal services	2,267	4,523	6,790	2·00	0·81
Total, Amusement, hotels, etc.	8,175	12,373	20,548	6·05	2·46
Other industries and industry inadequately described (*e*)	2,306	3,225	5,531	1·63	0·66
Grand Total—Persons in the work force	246,155	93,424	339,579	100·00	40·59
Persons not in the work force	180,536	316,558	497,094	....	59·41
TOTAL POPULATION	426,691	409,982	836,673	....	100·00

(*a*) Only those sub-groups in which more than 1 per cent of the work force (equivalent to 3,396 persons) were recorded are shown separately. (*b*) Comprises *Fishing; Hunting and trapping;* and *Forestry.* (*c*) Production, supply and maintenance. (*d*) Includes *Personal service* and *Private domestic service* (*e*) Includes *Industry not stated.*

INDUSTRY OF THE WORK FORCE—CENSUS, 30 JUNE 1966
CLASSIFICATION ACCORDING TO STATISTICAL DIVISION

Statistical Division	Primary (including mining and quarrying)	Manufacturing	Building and construction	Transport, storage and communication	Commerce	Community and business services (a)	Amusement, hotels, cafes, etc. (b)	Other industries (c)	Total (all industries)
MALES									
Perth Statistical Division	5,921	41,653	19,959	17,973	27,861	13,809	5,921	20,367	153,464
Other Divisions—									
South-West	7,138	4,125	2,430	2,011	2,240	916	557	1,562	20,979
Southern Agricultural	6,411	1,280	1,520	1,182	1,780	564	321	716	13,774
Central Agricultural	8,958	1,260	2,367	1,718	2,104	794	385	1,125	18,711
Northern Agricultural	6,330	725	1,397	1,050	1,309	530	311	659	12,311
Eastern Goldfields	5,594	625	1,314	989	985	563	321	692	11,083
Central	889	28	164	106	58	44	35	72	1,396
North-West	1,130	207	1,686	255	181	220	146	224	4,049
Pilbara	1,445	91	2,247	285	158	148	101	207	4,682
Kimberley	1,126	501	772	410	178	211	68	316	3,582
Total	39,021	8,842	13,897	8,006	8,993	3,990	2,245	5,573	90,567
Total, all Divisions	44,942	50,495	33,856	25,979	36,854	17,799	8,166	25,940	244,031
Migratory (d)	43	50	30	1,837	21	23	9	111	2,124
Total males in work force	44,985	50,545	33,886	27,816	36,875	17,822	8,175	26,051	246,155
FEMALES									
Perth Statistical Division	1,249	9,234	919	2,049	18,619	18,918	8,269	8,814	68,071
Other Divisions—									
South-West	1,067	379	52	242	1,524	1,385	914	589	6,152
Southern Agricultural	1,151	319	40	171	978	835	626	356	4,476
Central Agricultural	1,643	116	47	232	1,192	1,134	765	442	5,571
Northern Agricultural	836	102	31	173	755	712	617	303	3,529
Eastern Goldfields	325	75	21	88	757	763	563	294	2,886
Central	103	3	2	19	46	86	120	24	403
North-West	208	57	32	30	121	143	196	71	858
Pilbara	85	3	20	26	79	117	126	52	508
Kimberley	110	39	17	62	121	259	167	69	844
Total	5,528	1,093	262	1,043	5,573	5,434	4,094	2,200	25,227
Total, all Divisions	6,777	10,327	1,181	3,092	24,192	24,352	12,363	11,014	93,298
Migratory (d)	7	21	....	33	9	20	10	26	126
Total females in work force	6,784	10,348	1,181	3,125	24,201	24,372	12,373	11,040	93,424
PERSONS									
Perth Statistical Division	7,170	50,887	20,878	20,022	46,480	32,727	14,190	29,181	221,535
Other Divisions—									
South-West	8,205	4,504	2,482	2,253	3,764	2,301	1,471	2,151	27,131
Southern Agricultural	7,562	1,599	1,560	1,353	2,758	1,399	947	1,072	18,250
Central Agricultural	10,601	1,376	2,414	1,950	3,296	1,928	1,150	1,567	24,282
Northern Agricultural	7,166	827	1,428	1,223	2,064	1,242	928	962	15,840
Eastern Goldfields	5,919	700	1,335	1,077	1,742	1,326	884	986	13,969
Central	992	31	166	125	104	130	155	96	1,799
North-West	1,338	264	1,718	285	302	363	342	295	4,907
Pilbara	1,530	94	2,267	311	237	265	227	259	5,190
Kimberley	1,236	540	789	472	299	470	235	385	4,426
Total	44,549	9,935	14,159	9,049	14,566	9,424	6,339	7,773	115,794
Total, all Divisions	51,719	60,822	35,037	29,071	61,046	42,151	20,529	36,954	337,329
Migratory (d)	50	71	30	1,870	30	43	19	137	2,250
Total persons in work force	51,769	60,893	35,067	30,941	61,076	42,194	20,548	37,091	339,579

(a) Including *Professional.* (b) Includes *Private domestic service* and *Other personal services.* (c) Comprises *Electricity, gas, water and sanitary services (production, supply and maintenance); Finance and property; Public authority (n.e.i.) and defence services*; and *Industry inadequately described or not stated.* (d) Comprises persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.


Industry of the Work Force
CENSUS, 30 JUNE 1966
MALES AND FEMALES
MALES
FEMALES
thousands
10
20
30
40
50
60
PRIMARY PRODUCTION
MINING AND QUARRYING
MANUFACTURING
ELECTRICITY, GAS, WATER AND SANITARY SERVICES
BUILDING AND CONSTRUCTION
TRANSPORT AND STORAGE AND COMMUNICATION
FINANCE AND PROPERTY
COMMERCE
PUBLIC AUTHORITY (N.E.I.) AND DEFENCE SERVICES
COMMUNITY AND BUSINESS SERVICES (INCLUDING PROFESSIONAL)
AMUSEMENT, HOTELS, CAFES, PERSONAL SERVICES, ETC.
OTHER INDUSTRIES AND INDUSTRY NOT STATED

Classification of the components of the work force according to industry, as in the table on page 491, furnishes much useful information. It is interesting to note, for example, the preponderance of employers and the self-employed in Primary Production. Of the 43,438 persons engaged in this industry at 30 June 1966 nearly 60 per cent were in one or other of these categories.

Classification according to Occupation

Occupation is defined as the nature of the work which a person performs, and implies *personal* performance. It may be based on the material treated, the process carried out or the type of service rendered by an *individual* worker. Thus the occupation of a person is the kind of work that he or she personally performs, as distinct from industry, which is defined as any single *branch of productive activity, trade or service* and is not concerned with the nature of personal performance.

The Classification of Occupations used in the tabulation of the 1966 Census data has been adapted from and closely adheres to the principles embodied in the International Standard Classification of Occupations issued by the International Labour Office, Geneva, 1958. The International Standard Classification of Occupations was prepared after extensive discussions and research by world experts in this field to provide an adequate classification framework for countries interested in occupational classification and, at the same time, provide a basis for international comparison of occupational data obtained mainly from Censuses of Population. The Australian Classification of Occupations contains 11 Major Groups, 72 Minor Groups and 313 Occupation Categories. In accordance with the International Standard Classification, occupations have been grouped by the general similarity of the characteristics of the work they entail.

Complete descriptions of Major Groups, Minor Groups and Categories, together with a list of occupation titles included under each heading, are contained in the *Classification and Classified List of Occupations—Revised: June 1966*, published by the Commonwealth Statistician, Canberra.

The following table shows the numbers and the proportions of the Western Australian work force in each of the major groups of occupations, as recorded at the Census of 30 June 1966.

WORK FORCE CLASSIFIED ACCORDING TO OCCUPATION GROUP
CENSUS, 30 JUNE 1966

Occupation group	Males	Females	Persons	Percentage of total		
				Males	Females	Persons
Professional, technical and related workers	17,937	13,327	31,264	7·29	14·27	9·21
Administrative, executive and managerial workers	17,703	2,115	19,818	7·19	2·26	5·84
Clerical workers	20,307	27,193	47,500	8·25	29·11	13·99
Sales workers	12,862	14,385	27,247	5·23	15·40	8·02
Farmers, fishermen, hunters, timber getters and related workers	38,385	6,081	44,466	15·59	6·51	13·09
Miners, quarrymen and related workers	4,709	1	4,710	1·91	0·00	1·39
Workers in transport and communication occupations	20,382	2,315	22,697	8·28	2·48	6·68
Craftsmen, production-process workers and labourers, n.e.c.	100,081	6,648	106,729	40·66	7·12	31·43
Service, sport and recreation workers	9,747	18,295	28,042	3·96	19·58	8·26
Members of armed services	2,368	84	2,452	0·96	0·09	0·72
Occupation inadequately described or not stated	1,674	2,980	4,654	0·68	3·19	1·37
Total in work force	246,155	93,424	339,579	100·00	100·00	100·00

n.e.c. denotes 'not elsewhere classified'.

Labour Force Survey

Estimates of the civilian labour force are prepared each quarter by the Commonwealth Statistician. They are based on the results of the population survey, which is carried out on a 1 per cent sample throughout Australia in February, May, August and November each year. About 38,000 private dwellings (houses, flats, etc.) are visited during each survey, as well as a sample of other dwellings (hotels, motels, etc.). The survey information is obtained by means of personal interviews carried out by specially trained enumerators.

The figures shown in the accompanying table are taken from the publication *The Labour Force*, issued quarterly by the Commonwealth Statistician, Canberra, to which the reader is referred for statistics in greater detail. All published figures relate to Australia *as a whole*, and separate particulars for Western Australia are not available. The series in its present form commenced with the month of August 1966.

Population Coverage. The sample used in the surveys covers the six States, the Northern Territory and the Australian Capital Territory. The estimates relate to all persons aged fifteen years and over, except members of the permanent armed forces, national servicemen enlisted in the Regular Army Supplement and certain diplomatic personnel customarily excluded from census and estimated populations.

CIVILIAN POPULATION AGED 15 YEARS AND OVER (*a*)—EMPLOYMENT STATUS
AUSTRALIA

November—	Employed (*b*)			Unemployed (*b*)		Total labour force (*b*)		Not in labour force (*b*) ('000)	Civilian population aged 15 and over (*a*) ('000)
	Agriculture ('000)	Other industries ('000)	Total ('000)	Number ('000)	Per cent of labour force	Number ('000)	Per cent of population (*c*)		
MALES									
1966	364·8	3,001·6	3,366·5	32·3	1·0	3,398·8	83·7	664·1	4,062·9
1967	372·1	3,055·3	3,427·4	35·3	1·0	3,462·7	83·5	685·2	4,147·9
1968	371·2	3,121·2	3,492·4	35·2	1·0	3,527·6	83·1	719·5	4,247·1
1969	367·1	3,201·2	3,568·2	43·3	1·2	3,611·5	83·1	735·4	4,346·9
FEMALES									
1966	64·5	1,378·6	1,443·1	35·2	2·4	1,478·4	35·9	2,643·2	4,121·6
1967	58·9	1,443·3	1,502·2	38·5	2·5	1,540·7	36·6	2,671·9	4,212·6
1968	59·1	1,494·6	1,553·7	37·5	2·4	1,591·2	36·9	2,719·5	4,310·7
1969	69·1	1,586·5	1,655·6	43·2	2·5	1,698·7	38·5	2,714·2	4,412·9
PERSONS									
1966	429·4	4,380·2	4,809·6	67·6	1·4	4,877·1	59·6	3,307·3	8,184·5
1967	431·0	4,498·7	4,929·7	73·8	1·5	5,003·4	59·8	3,357·1	8,360·5
1968	430·3	4,615·8	5,046·1	72·7	1·4	5,118·8	59·8	3,439·0	8,557·8
1969	436·2	4,787·6	5,223·8	86·5	1·6	5,310·3	60·6	3,449·5	8,759·8

(*a*) See letterpress *Population Coverage* preceding table. (*b*) See letterpress *Classification of the Labour Force* below.
(*c*) Proportion of civilian population aged 15 years and over, *i.e.* labour force participation rate.

Classification of the Labour Force. The labour force category to which a person is assigned depends on his actual activity (*i.e.* whether working, looking for work, etc.) during a specified week, known as ' survey week ', which is the week immediately preceding that in which the interview takes place. The principal categories are as described below.

Employed persons comprise all those who, during survey week, (a) did any work for pay, profit, commission or payment in kind, in a job or business, or on a farm (including employees, employers and self-employed persons), or (b) worked fifteen hours or more without pay in a family business (or farm), or (c) had a job, business or farm, but were not at work because of illness, accident, leave, holiday or industrial dispute; or because of production hold-up due to bad weather, plant breakdown, etc.

A person who had a job but was temporarily laid off by his employer for the whole week without pay is excluded, and is classified in the tables as unemployed. A person who did some work during the week, however, before he either lost his job or was laid off, is classified as employed. A person who held more than one job is counted only once, in the job at which he worked most hours during survey week.

Unemployed persons comprise all those who, during survey week, did no work at all, and who either (a) did not have a job or business and were actively looking for work (including those who stated that they would have looked for work if they had not been

temporarily ill or believed no work was available, or had not already made definite arrangements to start work in a new job after survey week), or (b) were laid off from their jobs without pay for the whole week.

A person who either lost his job or was laid off in the course of survey week, but did some work at his job during that week, is classified as employed.

The labour force comprises all persons who, during survey week, were found to be ' employed ' or ' unemployed ' in accordance with the above criteria.

Persons not in the labour force are all those who, during survey week, were not in the categories ' employed ' or ' unemployed '. This category therefore includes persons without a job, business or farm who were not actively looking for work, and who, during survey week, were either keeping house (unpaid), attending school, university, etc., retired or voluntarily idle, permanently unable to work or inmates of institutions. A person who worked less than fifteen hours without pay in a family business during survey week is also classified as not in the labour force.

ESTIMATES OF EMPLOYMENT

In addition to employment data provided by the census and the labour force survey, there are available monthly estimates of the number of wage and salary earners in civilian employment, excluding employees in rural industry (comprising agriculture, grazing and dairying) and private domestic service.

The prime purpose of the series is to measure currently, and as nearly as possible with available data, *monthly trends* in employment in the defined field.

The employment estimates are based on comprehensive ' benchmark ' data derived for the purpose from the Population Censuses of June 1954 and June 1961. Figures for periods between and subsequent to the two benchmark points in time are estimates obtained from three main sources: (i) Pay-roll Tax returns, which are lodged by all employers paying more than $400 a week in wages, other than those specifically exempted under the *Pay-roll Tax Assessment Act* 1941-1969; (ii) returns from government bodies; and (iii) some other direct current records of employment, *e.g.* for hospitals. The data thus derived are supplemented by estimates of the changes in the number of wage and salary earners not covered by these collections. As they become available, particulars of employment obtained from other collections, notably the annual factory census (see Chapter VIII, Part 2) and the censuses and sample surveys of retail establishments, are used to check and, where desirable, to revise estimates in relevant sections.

The terms *employment*, *number employed*, *employees* and *wage earners* as used here are synonymous with, and relate to, wage and salary earners on pay-rolls or *in employment* in the latter part of each month, as distinct from numbers of employees *actually working* on a specific date. Some persons working part-time are included.

The benchmark figures were derived from particulars recorded for individuals on population census schedules, while the estimated monthly figures are derived mainly from reports supplied by employers, relating to enterprises or establishments. Because the two sources differ in some cases in scope and in the reporting of industry, the industry dissection of the benchmark totals was adjusted to conform as closely as possible to an enterprise/establishment reporting basis. The industry classification used is that of the Population Census of June 1961.

Employees in rural industry and in private domestic service are not included in the estimates because the available data are inadequate.

The employment estimates appearing in this Part are not directly comparable with statistics derived from the 1966 Population Census, for which new work force definitions were adopted. A new series of estimates for June 1966 and subsequent months has been prepared and will be published in the next issue of the Year Book. This new series is based on 1966 Census benchmarks and is therefore at a higher level than the present series. In due course the estimates for periods prior to the Census of June 1966 will be revised, but on a basis comparable with that of the 1961 Census benchmarks, the information needed to revise these benchmarks on the 1966 Census basis not being available.

WAGE AND SALARY EARNERS IN CIVILIAN EMPLOYMENT (*a*)—INDUSTRY GROUPS
Excluding Employees in Rural Industry and Private Domestic Service, and Defence Forces
(Thousands)

Industry group and sub-group	June 1954	June 1964	June 1965	June 1966	June 1967	1968 June	1968 Dec.
MALES							
Forestry, fishing and trapping	1·9	1·3	1·3	1·4	1·4	1·5	1·5
Mining and quarrying	8·5	7·1	6·9	7·2	7·8	8·6	9·3
Manufacturing	39·1	46·0	48·0	49·1	50·1	53·8	54·3
Electricity, gas, water and sanitary services	4·1	5·0	5·2	5·4	5·8	5·8	5·9
Building and construction	22·1	21·2	23·3	26·5	24·4	28·9	28·8
Transport and storage—							
Road transport and storage	3·9	5·1	5·6	6·2	6·5	7·3	7·6
Shipping and stevedoring	3·7	4·1	4·1	4·4	4·4	4·4	4·4
Rail and air transport	8·5	7·6	7·5	7·9	8·0	8·2	8·1
Communication	4·2	5·5	5·6	5·8	6·1	6·5	6·6
Finance and property—							
Banking	2·3	3·1	3·4	3·6	3·8	3·8	3·8
Other	1·6	2·9	3·0	3·2	3·4	3·8	4·0
Commerce—							
Retail trade	12·1	16·8	17·0	17·0	17·2	17·6	18·2
Wholesale and other commerce	9·9	12·0	12·3	12·8	13·2	13·8	15·0
Public authority activities, not elsewhere included	6·7	7·9	8·3	8·8	9·4	9·8	10·0
Other industries—							
Health, hospitals, etc.	2·0	3·4	3·5	3·7	3·8	3·9	4·0
Education	2·9	5·6	6·0	6·4	6·6	7·3	7·0
Other (*b*)	7·8	9·7	10·5	11·4	12·0	13·0	14·4
Total	141·2	164·3	171·5	180·7	183·9	198·1	202·8
FEMALES							
Forestry, fishing and trapping	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)	(*c*)
Mining and quarrying	0·1	0·2	0·2	0·3	0·3	0·5	0·5
Manufacturing	7·0	7·6	8·1	9·0	9·4	10·2	10·6
Electricity, gas, water and sanitary services	0·2	0·3	0·3	0·3	0·4	0·4	0·4
Building and construction	0·2	0·3	0·4	0·5	0·6	0·7	0·8
Transport and storage—							
Road transport and storage	0·3	0·5	0·5	0·6	0·6	0·7	0·7
Shipping and stevedoring	0·2	0·2	0·2	0·2	0·2	0·2	0·2
Rail and air transport	0·3	0·4	0·4	0·5	0·5	0·5	0·6
Communication	0·9	1·1	1·2	1·2	1·3	1·5	1·6
Finance and property—							
Banking	0·7	1·4	1·5	1·7	1·8	1·9	2·0
Other	1·2	2·2	2·3	2·5	2·5	2·9	3·1
Commerce—							
Retail trade	9·9	12·9	13·6	14·7	15·9	16·9	17·8
Wholesale and other commerce	3·2	3·5	3·7	4·1	4·3	4·7	4·9
Public authority activities, not elsewhere included	2·0	2·5	2·7	2·9	3·2	3·5	3·6
Other industries—							
Health, hospitals, etc.	5·8	10·4	11·0	11·3	11·8	12·3	12·4
Education	3·7	5·9	6·3	6·9	7·4	8·1	6·3
Other (*b*)	7·5	9·2	10·2	11·1	12·0	13·6	14·7
Total	43·2	58·5	62·7	68·0	72·4	78·7	80·2
PERSONS							
Forestry, fishing and trapping	1·9	1·3	1·3	1·4	1·5	1·5	1·5
Mining and quarrying	8·6	7·3	7·1	7·5	8·1	9·0	9·8
Manufacturing	46·1	53·6	56·1	58·1	59·5	64·0	64·9
Electricity, gas, water and sanitary services	4·3	5·3	5·5	5·8	6·2	6·2	6·3
Building and construction	22·3	21·5	23·7	27·0	25·0	29·6	29·6
Transport and storage—							
Road transport and storage	4·2	5·6	6·1	6·8	7·1	8·0	8·3
Shipping and stevedoring	3·9	4·3	4·3	4·6	4·6	4·7	4·6
Rail and air transport	8·8	8·0	7·9	8·3	8·4	8·7	8·7
Communication	5·1	6·6	6·8	7·0	7·5	8·0	8·2
Finance and property—							
Banking	3·0	4·5	4·9	5·2	5·6	5·8	5·8
Other	2·8	5·1	5·3	5·7	5·9	6·7	7·1
Commerce—							
Retail trade	22·0	29·7	30·6	31·7	33·0	34·5	36·0
Wholesale and other commerce	13·1	15·5	16·0	16·8	17·5	18·5	19·9
Public authority activities, not elsewhere included	8·7	10·4	11·0	11·7	12·7	13·2	13·6
Other industries—							
Health, hospitals, etc.	7·8	13·8	14·5	15·0	15·6	16·3	16·4
Education	6·6	11·5	12·3	13·3	14·0	15·4	13·3
Other (*b*)	15·3	18·9	20·7	22·6	24·1	26·7	29·1
Total	184·4	222·9	234·2	248·7	256·3	276·8	283·0

(*a*) Figures do not in all cases add to the totals shown owing to rounding to thousands. (*b*) See letterpress on page 499.
(*c*) Less than 50 employees.

The table on page 498 shows the number of wage and salary earners in civilian employment in various industry groups and sub-groups at the last pay-period in June of the years 1954 and 1964 to 1968, and in December 1968. The figures appearing against the item 'Other' under the heading 'Other Industries' comprise employees in the Industry Subgroups *Law, Order and Public Safety; Religion and Social Welfare; Other Community and Business Services; Amusement, Sport and Recreation; Hotels, Boarding Houses and other Accommodation, and Restaurants; and Other Personal Services.*

Employees of government and semi-government authorities are included in the figures shown in the table on page 498. Estimates of the numbers employed by Commonwealth, State and local government authorities are available separately. They include not only those engaged in administrative activities but also employees on services such as railways, road transport, air transport, shipping, education, health, hospitals and institutions, migrant hostels, banks, post office, broadcasting and television, police, factories, electricity generation and supply, water conservation, irrigation, road and bridge construction, harbour works and other public works. In the following table, government employment so defined is shown for June in each of the years 1954 and 1964 to 1968, and for December 1968.

GOVERNMENT AUTHORITIES—CIVILIAN EMPLOYEES IN WESTERN AUSTRALIA
(Thousands)

Date	Commonwealth (*a*)			State (*a*) (*b*)			Local government (*b*)			Total		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
June—												
1954	8·4	2·1	10·5	35·1	5·9	41·0	3·1	0·2	3·3	46·6	8·2	54·8
1964	10·6	2·6	13·2	39·6	9·5	49·1	4·3	0·4	4·7	54·5	12·5	67·0
1965	11·0	2·8	13·7	40·7	10·2	50·9	4·6	0·5	5·1	56·3	13·5	69·8
1966	11·6	3·0	14·6	42·1	11·0	53·1	4·7	0·6	5·3	58·4	14·6	73·0
1967	12·3	3·3	15·6	42·5	11·7	54·2	5·0	0·6	5·6	59·7	15·7	75·4
1968	13·2	3·6	16·8	43·9	12·7	56·6	5·3	0·7	6·0	62·4	17·0	79·3
Dec.—												
1968	13·2	3·8	17·0	44·3	11·2	55·5	5·4	0·7	6·1	62·9	15·7	78·6

(*a*) Includes employees of semi-governmental authorities. (*b*) Excludes a small number of employees engaged in rural industry.

UNEMPLOYMENT

A full count of unemployed persons in Western Australia is available only from population censuses. At the post-war censuses details have been obtained of all persons usually engaged in an industry, business, profession, trade or service but who were without employment at the time of the census, irrespective of whether they were actively seeking employment or not. At the 1966 Census, 2,938 males and 2,064 females were classified as being without employment. This was equivalent to 1·47 per cent of the total work force. Numbers of males and females unemployed in each of the Australian States and Territories and Australia as a whole are given in the table on page 488.

Monthly figures compiled by the Department of Labour and National Service from the operations of the Commonwealth Employment Service provide indicators of movement in the level of unemployment.

The department makes a count of the number of persons, registered with the Employment Service for employment on the Friday nearest to the end of the month, who claimed at the time of registering that they were not employed, and who were still recorded as unplaced. Included in the figures are persons who have been referred to employers and those who may have obtained employment without notifying the department. Also available from the Department of Labour and National Service is the number of vacancies, registered by employers, which were recorded as unfilled at the end of the month.

In the next table the number of persons registered for employment and vacancies registered at the end of June are shown for the years 1965 to 1969.

Applications for unemployment benefit are received by the Department of Labour and National Service acting on behalf of the Department of Social Services. Persons seeking unemployment benefit must register with the Employment Service, which is responsible for certifying that suitable employment is not available before benefits can be paid. Statistics of the number of persons receiving unemployment benefits are given on page 233.

Further details relating to the Commonwealth Employment Service appear on page 501.

COMMONWEALTH EMPLOYMENT SERVICE
WESTERN AUSTRALIA
PERSONS REGISTERED FOR EMPLOYMENT AND VACANCIES REGISTERED

At end of June—	Persons registered (*a*)			Vacancies registered		
	Males	Females	Total	Males	Females	Total
1965	1,774	1,802	3,576	1,973	449	2,422
1966	2,075	1,295	3,370	2,437	528	2,965
1967	2,160	1,597	3,757	1,852	559	2,411
1968	2,483	1,668	4,151	2,010	620	2,630
1969	2,284	1,723	4,007	2,955	831	3,786

(*a*) Persons who claimed when registering with the Commonwealth Employment Service that they were not employed and who were recorded as unplaced. Includes those referred to employers and those who may have obtained employment without notifying the Commonwealth Employment Service. Includes also persons receiving unemployment benefit.

One of the primary functions of the labour force survey (see pages 495-7) is to provide regular and detailed information on unemployment in Australia. The results of the survey are published for Australia *as a whole*, and separate particulars for Western Australia are not available. The series in its present form commenced with the month of August 1966.

UNEMPLOYED PERSONS (*a*) ACCORDING TO DURATION OF UNEMPLOYMENT
AUSTRALIA
('000)

November—	Unemployed persons		Duration of unemployment (weeks) (*b*)					Persons looking for—	
	Aged 15 and under 20 years	Aged 20 years and over	Under 2	2 and under 4	4 and under 13	13 and over	Total	Full-time work (*c*)	Part-time work (*d*)
MALES									
1966	10·9	21·4	11·2	8·5	5·6	7·1	32·3	29·4	(*e*)
1967	13·5	21·8	8·6	14·0	8·4	4·3	35·3	32·8	(*e*)
1968	14·9	20·3	10·5	12·6	9·2	(*e*)	35·2	30·9	4·3
1969	18·8	24·5	16·0	13·6	9·3	4·3	43·3	38·7	4·5
FEMALES									
1966	17·3	18·0	10·7	8·7	7·4	8·4	35·2	26·6	8·7
1967	17·5	21·0	10·4	10·4	12·4	5·3	38·5	29·6	8·9
1968	17·4	20·1	10·1	11·5	9·3	6·7	37·5	27·6	9·9
1969	18·7	24·5	15·6	11·5	9·6	6·5	43·2	30·8	12·4
PERSONS									
1966	28·2	39·4	21·9	17·2	13·0	15·5	67·6	56·0	11·6
1967	31·0	42·8	19·0	24·4	20·8	9·6	73·8	62·4	11·4
1968	32·3	40·4	20·6	24·1	18·5	9·5	72·7	58·5	14·2
1969	37·5	49·0	31·6	25·1	18·9	10·9	86·5	69·5	16·9

(*a*) Civilians aged 15 years and over. See letterpress *Labour Force Survey* on pages 495–7. (*b*) Period from the time the person began looking for work, or was laid off, to the end of survey week. (*c*) Includes persons laid off from full-time jobs. (*d*) Includes persons laid off from part-time jobs. (*e*) Less than 4,000; number not capable of more precise estimation within acceptable limits of the standard error of the sample.

UNEMPLOYED PERSONS (*a*) ACCORDING TO AGE: AUSTRALIA, NOVEMBER 1969

Age group (years)	Number unemployed ('000)			Per cent of labour force (*b*)		
	Males	Females	Persons	Males	Females	Persons
15–19	18·8	18·7	37·5	5·7	6·1	5·9
20–24	7·8	9·1	16·9	1·6	2·8	2·1
25–34	5·0	5·6	10·6	0·6	1·8	0·9
35–44	4·6	4·5	9·1	0·6	1·4	0·8
45–54	7·2	5·2	6·8	0·6	1·2	0·7
55 and over			5·6			0·8
Total	43·3	43·2	86·5	1·2	2·5	1·6

(*a*) Civilians aged 15 years and over. See letterpress *The Labour Force* on pages 495–7. (*b*) Number unemployed in each group as a percentage of the civilian labour force in the same group.

COMMONWEALTH EMPLOYMENT SERVICE

The Commonwealth Employment Service is established under the provisions of the *Re-establishment and Employment Act* 1945-1966. The main functions of the Service are to assist people seeking employment to obtain positions best suited to their training, experience, abilities and qualifications, and to assist employers seeking labour to obtain employees best suited to the kinds of work being offered.

Specialised facilities are provided for young people; persons with physical and mental handicaps; former members of the defence forces; migrants; rural workers; and persons with professional and technical qualifications. Vocational guidance is provided without charge by a staff of qualified psychologists. Guidance is available to any person, but is provided particularly for young people, ex-servicemen and the physically handicapped.

The Commonwealth Employment Service is responsible for placing in employment migrant workers sponsored by the Commonwealth under migration schemes. This function includes arranging for them to move to their initial employment and for their admission, if necessary, to Commonwealth migrant hostels. Experts for overseas service under technical aid programmes are recruited by the Employment Service.

In association with placement activities, regular surveys of the labour market are carried out, and detailed information is supplied to interested Commonwealth and State Government departments and instrumentalities and to the public. Employers, employees and other interested persons are advised on labour availability and employment opportunities in various occupations and areas and on other matters concerning employment.

In Western Australia at 31 December 1969 the Commonwealth Employment Service operated five offices in Perth and suburbs, and there were offices at Albany, Bunbury, Collie, Esperance, Geraldton, Kalgoorlie, Manjimup, Medina, Merredin, Northam and Port Hedland. The Service has a Higher Appointments Office in Perth, which deals with the placement of the more highly qualified and professional applicants.

Chapter X—continued

Part 3—Prices

RETAIL PRICES AND PRICE INDEXES

Prices of a limited range of commodities are recorded in the Blue Books of Western Australia from the early years of settlement. Retail prices of food and groceries and average rentals of houses for years extending back to 1901 have been collected by the Commonwealth Statistician, but it was not until 1911 that a systematic collection of retail price statistics was begun. These statistics were used to compile the ' A ' Series Index, which covered food, groceries and house rents and was first compiled in 1912 with the year 1911 as base = 1,000. Four other indexes covering a wider range of commodities and services were compiled by the Commonwealth Statistician at different times before the current Consumer Price Index was introduced in 1960 (retrospectively to the September quarter of 1948).

Retail price indexes aim to measure the changes which occur in the general level of prices in a selected field. The basic principle of a price index is to select commodities and services representative of the field to be covered, and to combine their prices at regular intervals by the use of ' weights ' which represent the relative importance of the several commodities and services in the selected field taken as a whole.

Information concerning retail price indexes and their development in Australia is given in the *Official Year Book of the Commonwealth of Australia* and the *Labour Report*, published by the Commonwealth Statistician, Canberra.

The Consumer Price Index. The purpose of the Consumer Price Index is to measure quarterly variations in retail prices of goods and services representing a high proportion of the expenditures of wage-earner households. The weighting pattern relates to estimated aggregates of wage-earner household expenditures and not to estimated expenditures of an ' average ' or individual household of specified size, type, or mode of living.

The index covers a wide range of commodities and services arranged in five major groups, comprising Food; Clothing and Drapery; Housing; Household Supplies and Equipment; and Miscellaneous.

The Consumer Price Index is designed essentially to measure the proportionate change in prices as combined in the individual groups, and more particularly, the total of the groups. Consumer (retail) price indexes are sometimes loosely called ' cost of living indexes ' and are thought to measure changes in the ' cost of living '. While they may be used as indicating proportional variations in cost of a constant standard of living, they do not measure the absolute cost of any standard of living, nor the absolute cost of changes in the standard of living. The change in prices of goods and services is nevertheless a very important part of the change in the cost of living and this part is measured by consumer (retail) price indexes.

The incidence and frequency of changes in the pattern of household expenditure since 1950 have been such as to make it necessary to construct not one but a series of new indexes introducing additional items and changes in weighting patterns at short intervals. The Consumer Price Index therefore consists of a sequence of short-term retail price indexes linked to form one continuous series. At times of linking, the weighting pattern was altered and new items which had become significant in household expenditure were introduced. In each period between links the items and weighting remained unchanged. The most recent link in the series was made as at the December quarter of 1968. The weighting of this sixth linked index has been derived from analyses of data from the 1966

Census of Population and Housing, from recent statistics and estimates of production and consumption, and from several special-purpose sample surveys. Weights of all items have been reviewed and are, in general, now based on the pattern of consumption of the years 1962-63 to 1966-67. Further information is contained in the mimeographed release *Consumer Price Index—March Quarter 1969* issued by the Commonwealth Statistician, Canberra.

When the latest link was effected, the reference base year of the index was changed from 1952-53 = 100·0 to 1966-67 = 100·0. All Consumer Price Index numbers which had previously been published on the 1952-53 reference base were recalculated on the new 1966-67 reference base and are available for each quarter and each year from the September quarter of 1948. Index numbers for past periods show exactly the same percentage movements on either reference base, apart from some slight differences caused by rounding.

The Consumer Price Index is compiled for each of the six State capital cities and for Canberra. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in the degree of price movement, but not as to differences in the price level.

In tables dealing with the Consumer Price Index, the figures appearing after the decimal point have little significance for general statistical purposes. They are inserted to avoid distortions that would occur in rounding off the figures to the nearest whole number.

The following table shows the several group index numbers and the 'All groups' index numbers, for Perth and for the six State capital cities combined, for selected years during the period 1948-49 to 1968-69.

CONSUMER PRICE INDEX
(Base of *each* Index: Year 1966–67 = 100·0)

Year	Group index numbers					Combined index (All groups)
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous	
PERTH						
1948–49	38·4	50·6	36·1	60·4	45·4	44·0
1953–54	74·0	84·8	62·0	92·7	66·8	74·6
1958–59	80·3	90·8	75·0	96·3	79·6	83·2
1963–64	87·4	95·7	89·8	95·7	86·2	89·8
1964–65	91·0	96·8	92·1	96·7	90·0	92·6
1965–66	95·2	97·9	95·4	98·3	95·3	96·1
1966–67	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
1967–68	102·9	102·1	105·8	100·7	103·2	102·9
1968–69	104·5	104·5	112·7	102·1	105·6	105·5
SIX STATE CAPITAL CITIES COMBINED (*a*)						
1948–49	38·2	48·9	40·5	58·3	44·7	43·9
1953–54	73·2	84·3	58·5	88·3	67·1	73·5
1958–59	81·6	90·5	72·9	94·4	81·4	83·6
1963–64	89·0	95·3	89·1	96·4	87·3	90·6
1964–65	93·9	96·8	92·0	97·2	91·4	94·0
1965–66	98·4	97·9	95·9	98·9	95·8	97·4
1966–67	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**	**100·0**
1967–68	104·7	102·2	104·5	101·2	102·8	103·3
1968–69	105·8	104·3	109·1	102·9	107·5	106·0

(*a*) Weighted average.

The following table shows the 'All groups' index numbers for the six State capital cities, separately and combined, for selected years during the period 1948-49 to 1968-69.

CONSUMER PRICE INDEX—'ALL GROUPS' INDEX NUMBERS
SIX STATE CAPITAL CITIES, SEPARATELY AND COMBINED

(Base of *each* Index: Year 1966–67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

Year	Sydney	Melbourne	Brisbane	Adelaide	Perth	Hobart	Weighted average of six State capital cities
1948–49	44·4	43·3	43·1	45·0	44·0	43·0	43·9
1953–54	74·5	72·5	70·9	74·7	74·6	74·4	73·5
1958–59	84·6	82·9	82·1	83·6	83·2	84·1	83·6
1963–64	91·4	90·4	89·6	90·2	89·8	91·7	90·6
1964–65	94·5	94·0	93·0	93·9	92·6	94·6	94·0
1965–66	97·7	97·5	97·5	97·0	96·1	98·0	97·4
1966–67	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1967–68	103·2	103·7	103·3	102·9	102·9	104·6	103·3
1968–69	106·2	106·2	105·5	105·3	105·5	106·1	106·0

Retail Price Index Numbers, 1901 to 1969. The index numbers shown in the following table are presented as a continuous series, but they give only a broad indication of long-term trends in retail price levels. They are derived by linking a number of indexes that differ greatly in scope. The successive indexes used are: from 1901 to 1914, the 'A' Series Retail Price Index; from 1914 to 1946-47, the 'C' Series Retail Price Index; from 1946-47 to 1948-49, a composite of Consumer Price Index Housing Group (partly estimated) and 'C' Series Index excluding Rent; from 1948-49 to 1969, the Consumer Price Index.

RETAIL PRICE INDEX NUMBERS, 1901 TO 1969
SIX STATE CAPITAL CITIES COMBINED
(Base: Year 1911 = 100)

Year	Index number	Year	Index number	Year	Index number
1901	88	1924	164	1947	198
1902	93	1925	165	1948	218
1903	91	1926	168	1949	240
1904	86	1927	166	1950	262
1905	90	1928	167	1951	313
1906	90	1929	171	1952	367
1907	90	1930	162	1953	383
1908	95	1931	145	1954	386
1909	95	1932	138	1955	394
1910	97	1933	133	1956	419
1911	100	1934	136	1957	429
1912	110	1935	138	1958	435
1913	110	1936	141	1959	443
1914 (*a*)	114	1937	145	1960	459
1915 (*a*)	130	1938	149	1961	471
1916 (*a*)	132	1939	153	1962	469
1917 (*a*)	141	1940	159	1963	472
1918 (*a*)	150	1941	167	1964	483
1919 (*a*)	170	1942	181	1965	502
1920 (*a*)	193	1943	188	1966	517
1921 (*a*)	168	1944	187	1967	534
1922 (*a*)	162	1945	187	1968	548
1923	166	1946	190	1969	564

(*a*) November.

Retail Prices. The average retail prices of selected items of food and groceries in Perth are shown in the following tables.

AVERAGE RETAIL PRICES OF FOOD AND GROCERIES—PERTH
(Cents)

Commodity	Unit	1964	1965	1966	1967	1968
GROCERIES						
Bread, ordinary white	2 lb	15·5	16·0	17·1	18·1	19·0
Flour, plain, prepacked	,,	12·6	12·7	13·4	14·1	15·3
,, self-raising	,,	16·9	17·1	17·6	18·3	18·6
Tea	½ lb	30·4	30·5	30·6	30·7	30·6
Sugar (*a*)	lb	9·0	8·8	8·7	9·4	10·2
Rice	1 lb pkt	13·0	13·2	13·2	13·8	14·5
Jam, plum	1½ lb tin	26·5	26·6	27·0	28·0	29·4
Oats, rolled (*a*)	1½ lb pkt	20·3	21·8	*23·2	23·4	24·1
Peaches, canned	29 oz	28·1	29·3	30·5	31·1	32·5
Pears, canned	,,	28·2	29·4	30·5	31·5	32·5
Potatoes	7 lb	32·7	42·3	42·0	42·1	42·6
Onions, brown	lb	8·4	8·3	11·2	8·7	11·1
Soap, laundry (*a*)	20 oz pkt	25·3	28·3	31·0	31·4	31·9
DAIRY PRODUCE						
Butter	lb	48·8	50·0	50·1	50·0	49·9
Cheese, processed	½ lb pkt	21·8	22·3	23·4	24·7	24·9
Eggs, 24 oz	dozen	57·7	59·5	63·6	65·5	65·2
Bacon, rashers, prepacked (*a*)	½ lb	37·1	37·8	39·9	41·4	43·7
Milk, condensed	14 oz tin	19·1	19·6	19·9	20·6	21·3
,, fresh, bottled	quart	17·5	18·5	20·0	20·0	20·0
MEAT						
Beef (fresh)—						
Sirloin	lb	45·3	48·5	56·0	59·8	61·2
Rib (without bone)	,,	42·2	44·4	50·6	53·4	54·0
Steak, rump	,,	66·1	71·1	85·1	92·1	96·8
,, chuck	,,	40·6	43·0	50·7	54·3	56·0
Sausages	,,	21·2	22·3	24·4	24·8	24·3
Beef (corned)—						
Silverside	,,	43·0	45·5	51·9	55·4	56·8
Brisket, rolled	,,	30·8	33·1	38·4	42·3	44·6
Mutton (fresh)—						
Leg	,,	28·6	29·6	31·8	33·2	32·6
Forequarter	,,	18·8	18·7	20·8	21·4	20·2
Chops, loin	,,	27·3	28·1	29·4	30·7	28·5
,, leg	,,	27·4	28·3	30·1	31·6	31·0
Lamb (fresh)—						
Leg	,,	44·1	45·1	48·1	50·2	48·4
Forequarter	,,	29·0	30·0	32·5	33·6	30·4
Chops, loin	,,	45·8	47·2	49·3	51·2	48·3
,, leg	,,	45·8	47·2	49·4	51·4	49·0
Pork (fresh)—						
Leg	,,	55·3	56·1	58·8	60·2	63·8
Loin	,,	55·4	56·2	59·4	61·0	64·4
Chops	,,	55·8	56·4	59·5	61·2	64·3

(*a*) Series not strictly comparable throughout due to changes in unit or method of packing, necessitating some calculation of imputed prices. * Revised.

WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING

The Wholesale Price Index of Materials used in Building other than House Building is compiled by the Commonwealth Statistician and was first published in April 1969. Index numbers are produced monthly for each State capital city and for the six State capital cities combined.

The index measures changes in prices of selected materials used in the construction of buildings other than houses and ' low-rise ' flats (in general, those up to three storeys). Its composition is in accordance with the materials usage in actual building projects which were selected as representative for the purpose. The building ' use-types ' (*e.g.* office building, factory, etc.) directly represented are ' high-rise ' flats (in general, those of more than three storeys); offices; factories; health buildings (*i.e.* hospitals, nurses' quarters, clinics, etc.); education buildings (*i.e.* schools, universities, kindergartens, etc.); and commercial premises including hotels, hostels, etc., shops, and other business premises. The index includes seventy-two items, which are combined in eleven groups as shown in the next table.

Although the selected materials (or many of them) are also used in house (and low-rise flat) building, in building repair, maintenance and alteration work, and in ' engineering construction ' work (*e.g.* projects such as roads, dams, bridges and the like), the weighting pattern of the index, being designed for the specific purpose mentioned earlier, is not applicable to these other activities of the Construction industry. In addition, since the weights are based on an average materials usage over the stated range of building use-types, the index is not necessarily applicable to any specific building or any of the separate use-types.

The reference base of the index is the year 1966-67 = 100·0. The index is a fixed-weights index and is calculated by the method known as ' the weighted arithmetic mean of price relatives '. The items and weights were derived from reported values of each material used in selected representative buildings constructed in or about 1966-67. The selection took account of building use-type and construction characteristics (*e.g.* type of frame, wall, floor, etc.) within use-types.

A single weighting pattern, relating to the whole of Australia, is applied (with minor exceptions) to local price measures in calculating indexes for each State capital city. The index for the six State capital cities combined is a weighted average of individual city indexes. The relative weighting of the capitals is in proportion to the estimated value on completion of building other than house building in the separate States during the three years ended June 1967.

Price series used in the index relate to specified standards of each commodity and are obtained in all State capital cities from representative suppliers of materials used in building. In the main they are collected as at the mid-point of the month to which the index refers.

The index has been compiled for each month from July 1966 and for the financial years from 1966-67. Figures are published to one decimal place to avoid distortions that would occur in rounding off the index numbers to the nearest whole number.

The separate city indexes measure price movements in each State capital city individually. They enable comparisons to be drawn between capitals as to differences in degree of price movement from period to period, but not as to differences in price level.

Further information concerning the method of compiling the index, as well as detailed group index numbers for each State capital city, is given in the monthly publication *Wholesale Price Indexes—Price Index of Materials used in Building other than House Building*, first issued on 23 April 1969 by the Commonwealth Statistician, Canberra.

The following table shows the separate group index numbers and the ' All groups ' index numbers, for Perth and for the six State capital cities combined, for the years 1966-67 to 1968-69.

WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING—GROUP INDEX NUMBERS
(Base of *each* Index: Year 1966–67 = 100·0)

Group	Perth			Weighted average of six State capital cities		
	1966–67	1967–68	1968–69	1966–67	1967–68	1968–69
Concrete mix, cement, sand, etc.	100·0	100·6	101·4	100·0	101·5	103·5
Cement products	100·0	104·3	108·1	100·0	102·2	106·8
Bricks, stone, etc.	100·0	103·0	106·2	100·0	103·7	108·2
Timber, board and joinery	100·0	104·1	108·0	100·0	103·0	107·2
Steel and iron products	100·0	101·7	104·2	100·0	102·3	106·1
Aluminium products	100·0	99·7	101·8	100·0	101·4	103·9
Other metal products	100·0	105·7	106·4	100·0	105·9	106·8
Plumbing fixtures	100·0	101·7	103·4	100·0	102·8	103·3
Miscellaneous materials	100·0	102·7	103·9	100·0	102·3	103·2
Electrical installation materials (*a*)	100·0	100·9	102·1	100·0	100·9	102·1
Mechanical services components (*b*)	100·0	101·4	107·5	100·0	101·4	107·7
All groups	100·0	102·0	104·7	100·0	102·2	105·6

(*a*) Based on Sydney and Melbourne prices. (*b*) In the main based on Sydney and Melbourne prices.

The following table shows the 'All groups' index numbers, for each State capital city and for the six State capital cities combined, for the years 1966-67 to 1968-69.

WHOLESALE PRICE INDEX OF MATERIALS USED IN BUILDING OTHER THAN HOUSE BUILDING—'ALL GROUPS' INDEX NUMBERS

(Base of *each* Index: Year 1966–67 = 100·0)

NOTE. The separate city indexes measure price movements within each city individually. They enable comparisons to be drawn between cities as to differences in degree of price movement, but not as to differences in price level.

City	1966–67	1967–68	1968–69
Sydney	100·0	102·6	106·5
Melbourne	100·0	101·7	105·0
Brisbane	100·0	102·2	105·1
Adelaide	100·0	101·8	105·0
Perth	100·0	102·0	104·7
Hobart	100·0	102·3	105·1
Weighted average of six State capital cities	100·0	102·2	105·6

EXPORT PRICE INDEX

An annual index of export prices has been published by the Commonwealth Statistician for all years from 1901 onwards. The current Export Price Index, with the year 1959-60 as base = 100, has been compiled for each month and each year from July 1959.

The Export Price Index is a fixed-weights index. Its purpose is to provide comparisons monthly over a limited number of years of the level of export prices of the selected items, making no allowance for variations in quantities exported. The index numbers are thus measures of price change only.

The price series used in the index relate to specified standards for each commodity and in most cases are combinations of prices for a number of representative grades, types, etc. For some commodities price movements in the predominant market, or markets, are used, while for other commodities average realisations in all export markets are used. As nearly as possible, prices used are on the basis *f.o.b.* at the main Australian ports of export.

There are twenty-nine items in the index with weights based on average annual values of exports during the five years 1956-57 to 1960-61.

A full description of the index, together with details of earlier series, is given in the *Official Year Book of the Commonwealth of Australia*: No. 55, 1969 (pages 256-60).

The following table shows the index numbers, for each group and for all groups combined, for each year from 1959-60 to 1968-69.

EXPORT PRICE INDEX NUMBERS—AUSTRALIA

(Base of *each* Index: Year 1959–60 = 100)

Year	Wool	Meats	Dairy produce	Cereals	Dried and canned fruits	Sugar	Hides and tallow	Metals and coal	Gold	All groups
1959–60	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**
1960–61	92	104	82	99	99	101	92	97	100	95
1961–62	97	100	81	106	95	91	84	91	100	96
1962–63	104	101	88	107	90	107	72	89	100	101
1963–64	120	105	93	107	98	175	73	101	100	114
1964–65	102	110	94	107	100	100	91	123	101	105
1965–66	107	120	86	107	102	84	107	122	101	107
1966–67	103	124	84	114	101	67	89	117	101	105
1967–68	95	125	79	109	95	67	67	120	104	100
1968–69	99	131	72	104	97	72	73	123	117	102

STATISTICAL SUMMARY FROM 1829

In the next nineteen pages, a historical summary of some of the more important statistics relating to Western Australia is shown. This is intended to present a general picture of the development of the State, with details being given (wherever they are available) for the year 1829, for every tenth year in the period 1830-1900, and for each single year from 1906. Figures for the period 1901-1905 have been omitted from the tables in several instances owing to insufficient space. In these cases, the figures are available, if required, from the *Western Australian Year Book*, No. 7—1968 and earlier issues, and the *Statistical Register of Western Australia.*

ESTIMATED POPULATION, NATURAL INCREASE AND MIGRATION (*a*)

NOTE. A line drawn across a column indicates a break in continuity in the series. Figures above the line exclude full-blood Aborigines; those below the line refer to total population, including Aborigines. See also note on page 124.

Year	Population at 31 December			Population increase				Mean population		Population of Perth Statistical Division (*f*)
	Males	Females	Persons	Recorded natural increase (*b*)	Estimated net migration (*c*)	Total increase (*d*) Number	Total increase (*d*) Per cent (*e*)	Year ended— 30 June	Year ended— 31 December	
										('000)
1829	769	234	1,003	(*g*)	(*g*)	(*g*)	(*g*)		(*g*)	
1830	877	295	1,172	(*g*)	(*g*)	169	16·85		(*g*)	
1840	1,434	877	2,311	34	123	157	7·29		(*g*)	
1850	3,576	2,310	5,886	132	1,109	1,241	26·72		(*g*)	(*g*)
1860	9,597	5,749	15,346	379	130	509	3·43	(*g*)	15,092	
1870	15,511	9,624	25,135	475	7	482	1·96		24,894	
1880	16,985	12,576	29,561	551	— 129	422	1·45		29,350	
1890	28,854	19,648	48,502	1,021	1,821	2,842	6·22		47,081	20
1900	110,088	69,879	179,967	3,214	6,495	9,709	5·70		175,113	73
1906	148,061	107,112	255,173	4,716	319	5,035	2·01	251,112	254,362	104·7
1907	146,264	108,276	254,540	4,781	— 5,414	— 633	— 0·25	255,840	255,510	105·0
1908	148,447	111,224	259,671	4,876	255	5,131	2·02	255,933	257,822	107·6
1909	151,325	114,350	265,675	4,898	1,106	6,004	2·31	260,355	263,279	110·6
1910	157,971	118,861	276,832	4,845	6,312	11,157	4·20	266,686	271,019	115·7
1911	167,993	125,930	293,923	5,168	11,923	17,091	6·17	278,043	286,712	121·4
1912	173,897	131,724	305,621	5,354	6,344	11,698	3·98	294,364	301,040	126·5
1913	180,534	139,401	319,935	6,284	8,030	14,314	4·68	307,145	313,383	132·9
1914	178,978	143,111	322,089	6,161	— 4,007	2,154	0·67	319,014	322,668	133·7
1915	170,890	145,773	316,663	6,025	— 11,451	— 5,426	— 1·68	322,996	321,247	133·3
1916	159,237	147,643	306,880	5,478	— 15,261	— 9,783	— 3·09	317,867	313,066	135·6
1917	157,532	149,306	306,838	5,113	— 5,155	— 42	— 0·01	308,756	306,339	142·3
1918	159,865	150,318	310,183	4,273	— 928	3,345	1·09	306,804	308,198	145·6
1919	174,981	152,879	327,860	3,347	14,330	17,677	5·70	311,835	319,955	155·7
1920	176,895	154,428	331,323	4,761	— 1,298	3,463	1·06	327,152	330,023	167·0
1921	178,968	157,580	336,548	4,327	898	5,225	1·58	331,973	334,084	171·0
1922	184,471	161,073	345,544	4,964	4,032	8,996	2·67	337,269	341,375	178·1
1923	191,131	165,728	356,859	4,924	6,391	11,315	3·27	345,891	350,772	191·8
1924	197,676	170,648	368,324	5,038	6,427	11,465	3·21	356,751	363,152	199·9
1925	202,554	174,973	377,527	4,870	4,333	9,203	2·50	368,525	372,970	203·0
1926	206,797	178,436	385,233	4,951	2,755	7,706	2·04	376,933	380,930	208·4
1927	215,851	184,046	399,897	5,089	9,575	14,664	3·81	385,780	392,071	216·2
1928	225,072	189,549	414,621	5,064	9,660	14,724	3·68	399,777	407,576	222·4
1929	231,361	195,276	426,637	5,121	6,895	12,016	2·90	414,489	420,756	229·0
1930	232,868	198,742	431,610	5,426	— 453	4,973	1·17	425,785	429,079	235·1
1931	232,397	201,289	433,686	4,868	— 2,792	2,076	0·48	431,022	432,347	239·9
1932	233,049	203,271	436,320	4,250	— 1,616	2,634	0·61	433,596	435,041	238·9
1933	234,744	205,898	440,642	4,084	238	4,322	0·99	436,798	438,780	232·1
1934	236,140	207,589	443,729	3,725	— 638	3,087	0·70	440,736	442,354	234·3
1935	238,739	210,884	449,623	4,001	1,893	5,894	1·33	444,275	446,874	237·7
1936	240,827	213,373	454,200	4,249	328	4,577	1·02	449,728	452,294	241·0
1937	244,050	216,492	460,542	4,544	1,798	6,342	1·40	454,532	457,328	244·4
1938	246,943	219,741	466,684	4,907	1,235	6,142	1·33	460,642	463,808	247·7
1939	249,065	223,315	472,380	4,696	1,000	5,696	1·22	466,896	469,780	252·2
1940	248,734	225,342	474,076	4,598	— 2,902	1,696	0·36	472,060	473,397	255·5
1941	246,842	226,371	473,213	4,906	— 5,769	— 863	— 0·18	474,180	473,988	260·0
1942	246,816	229,839	476,655	3,791	— 349	3,442	0·73	474,833	476,619	265·6
1943	246,389	231,875	478,264	5,137	— 3,528	1,609	0·34	476,989	476,745	272·3
1944	249,301	235,474	484,775	5,857	654	6,511	1·36	478,271	481,498	281·2
1945	251,590	238,498	490,088	5,418	— 105	5,313	1·10	484,720	487,510	289·0
1946	255,310	241,663	496,973	7,277	— 392	6,885	1·40	489,982	492,771	297·9
1947	261,653	247,109	508,762	8,119	3,670	11,789	2·37	497,006	502,951	307·3
1948	268,304	253,695	521,999	8,246	4,991	13,237	2·60	508,747	514,621	315·8
1949	280,273	263,911	544,184	8,721	13,464	22,185	4·25	521,932	532,603	331·4
1950	294,758	277,891	572,649	9,170	19,295	28,465	5·23	545,134	557,878	351·7
1951	304,454	285,885	590,339	9,506	8,184	17,690	3·09	570,346	580,317	362·8
1952	316,700	296,235	612,935	10,204	12,392	22,596	3·83	589,887	600,615	378·1
1953	326,372	305,371	631,743	10,790	8,018	18,808	3·07	611,191	621,034	390·1
1954	334,342	314,365	648,707	10,564	6,400	16,964	2·69	630,705	639,963	402·2
1955	343,838	324,771	668,609	11,244	8,658	19,902	3·07	648,222	657,323	416·8
1956	350,333	330,935	681,268	11,344	1,315	12,659	1·89	666,898	674,459	427·4
1957	356,195	339,039	695,234	11,627	2,339	13,966	2·05	680,949	687,448	438·9
1958	361,441	345,755	707,196	11,177	785	11,962	1·72	693,568	699,915	449·3
1959	366,253	352,438	718,691	11,614	— 119	11,495	1·63	705,869	711,737	459·5
1960	372,665	358,368	731,033	11,229	1,113	12,342	1·72	717,316	722,900	470·3
1961	384,773	370,440	755,213	11,349	2,571	13,920	1·90	729,770	737,596	482·7
1962	395,891	381,357	777,248	11,254	10,499	22,035	2·92	755,770	766,205	500·3
1963	407,024	391,871	798,895	11,314	10,068	21,647	2·79	777,413	788,457	517·8
1964	417,023	401,098	818,121	10,256	8,705	19,226	2·41	798,824	808,300	534·0
1965	427,330	410,918	838,248	9,912	9,963	20,127	2·46	817,157	826,481	550·9
1966	439,680	423,005	862,685	10,235	14,046	24,437	2·92	837,290	848,837	569·5
1967	454,743	438,020	892,763	11,244	18,834	30,078	3·49	862,130	876,997	591·0
1968	473,779	456,979	930,758	12,073	25,922	37,995	4·26	892,537	910,123	622·5

(*a*) Estimates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (*b*) Excess of births over deaths, including deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (*c*) Interstate and overseas. (*d*) Minus sign (—) denotes decrease. (*e*) The rates represent total increase in population during the year expressed as a proportion per cent of the population at the end of the previous year. (*f*) At 31 December. (*g*) Not available.

VITAL STATISTICS

See NOTE at head of previous table.

Year	Marriages registered	Live births registered	Deaths registered (b)	Natural increase (c)	Rate per 1,000 of mean population (a)				Infant mortality	
					Marriages	Births	Deaths (b)	Natural increase (c)	Number (d)	Rate (e)
1840	25	54	20	34	(f)	(f)	(f)	(f)	(f)	(f)
1850	37	186	54	132	(f)	(f)	(f)	(f)	(f)	(f)
1860	151	588	209	379	10·01	38·96	13·85	25·11	(f)	(f)
1870	153	853	378	475	6·15	34·27	15·18	19·08	100	117·2
1880	214	933	382	551	7·29	31·79	13·02	18·77	72	77·2
1890	278	1,561	540	1,021	5·90	33·16	11·47	21·69	140	89·7
1900	1,781	5,454	2,240	3,214	10·17	31·15	12·79	18·35	688	126·2
1906	2,261	7,800	3,084	4,716	8·89	30·66	12·12	18·54	858	110·0
1907	2,114	7,712	2,931	4,781	8·27	30·18	11·47	18·71	752	97·5
1908	2,012	7,755	2,879	4,876	7·80	30·08	11·17	18·91	657	84·7
1909	1,997	7,602	2,704	4,898	7·59	28·87	10·27	18·60	593	78·0
1910	2,107	7,585	2,740	4,845	7·77	27·99	10·11	17·88	593	78·2
1911	2,421	8,091	2,923	5,168	8·44	28·22	10·19	18·03	615	76·0
1912	2,524	8,689	3,335	5,354	8·38	28·86	11·08	17·78	713	82·1
1913	2,572	9,218	2,934	6,284	8·21	29·41	9·36	20·05	648	70·3
1914	2,660	9,204	3,043	6,161	8·24	28·52	9·43	19·09	627	68·1
1915	2,581	9,017	2,992	6,025	8·03	28·07	9·31	18·76	600	66·5
1916	2,365	8,563	3,085	5,478	7·55	27·35	9·85	17·50	567	66·2
1917	1,621	7,882	2,769	5,113	5·29	25·73	9·04	16·69	450	57·1
1918	1,612	7,106	2,833	4,273	5·23	23·06	9·19	13·87	406	57·1
1919	2,194	6,937	3,590	3,347	6·86	21·68	11·22	10·46	424	61·1
1920	2,932	8,149	3,388	4,761	8·88	24·69	10·27	14·42	538	66·0
1921	2,656	7,807	3,480	4,327	7·95	23·37	10·42	12·95	611	78·3
1922	2,446	8,131	3,167	4,964	7·17	23·82	9·28	14·54	452	55·6
1923	2,376	7,854	2,930	4,924	6·77	22·39	8·35	14·04	442	56·3
1924	2,596	8,301	3,263	5,038	7·15	22·86	8·99	13·87	414	49·9
1925	2,746	8,185	3,315	4,870	7·36	21·95	8·89	13·06	463	56·6
1926	2,844	8,301	3,350	4,951	7·47	21·79	8·79	13·00	409	49·3
1927	3,108	8,482	3,393	5,089	7·93	21·63	8·65	12·98	389	45·9
1928	3,309	8,704	3,640	5,064	8·12	21·36	8·93	12·43	419	48·1
1929	3,367	9,051	3,930	5,121	8·00	21·51	9·34	12·17	508	56·1
1930	3,205	9,200	3,774	5,426	7·47	21·44	8·80	12·64	430	46·7
1931	2,741	8,549	3,681	4,868	6·34	19·77	8·51	11·26	355	41·5
1932	2,904	7,965	3,715	4,250	6·68	18·31	8·54	9·77	355	44·6
1933	3,374	7,874	3,790	4,084	7·69	17·95	8·64	9·31	290	36·8
1934	3,682	7,801	4,076	3,725	8·32	17·64	9·21	8·42	319	40·9
1935	3,940	8,119	4,118	4,001	8·82	18·17	9·22	8·95	326	40·2
1936	4,242	8,479	4,230	4,249	9·38	18·75	9·35	9·39	358	42·2
1937	4,169	8,609	4,065	4,544	9·12	18·82	8·89	9·94	323	37·5
1938	4,153	9,141	4,234	4,907	8·95	19·71	9·13	10·58	309	33·8
1939	4,195	9,036	4,336	4,700	8·93	19·23	9·23	10·00	369	40·8
1940	5,234	9,121	4,486	4,635	11·06	19·27	9·48	9·79	403	44·2
1941	5,077	10,118	4,769	5,349	10·71	21·35	10·06	11·29	357	35·3
1942	5,441	9,901	5,076	4,825	11·42	20·77	10·65	10·12	365	36·9
1943	4,528	10,481	4,587	5,894	9·50	21·98	9·62	12·36	342	32·6
1944	4,506	10,870	4,478	6,392	9·36	22·58	9·30	13·28	354	32·6
1945	3,788	10,672	4,712	5,960	7·77	21·89	9·67	12·23	315	29·5
1946	5,171	12,105	4,753	7,352	10·49	24·57	9·65	14·92	376	31·1
1947	5,282	12,874	4,723	8,151	10·50	25·60	9·39	16·21	398	30·9
1948	5,186	12,931	4,685	8,246	10·08	25·13	9·10	16·02	331	25·6
1949	4,951	13,511	4,790	8,721	9·30	25·37	8·99	16·37	357	26·4
1950	5,434	14,228	5,058	9,170	9·74	25·50	9·07	16·44	386	27·1
1951	5,390	14,794	5,288	9,506	9·29	25·49	9·11	16·38	425	28·7
1952	5,389	15,413	5,209	10,204	8·97	25·66	8·67	16·99	384	24·9
1953	5,032	15,862	5,072	10,790	8·10	25·54	8·17	17·37	378	23·8
1954	5,204	15,928	5,364	10,564	8·13	24·89	8·38	16·51	359	22·5
1955	5,145	16,623	5,379	11,244	7·83	25·29	8·18	17·11	373	22·4
1956	5,080	16,916	5,572	11,344	7·53	25·08	8·26	16·82	384	22·7
1957	4,897	16,924	5,297	11,627	7·12	24·62	7·71	16·91	357	21·1
1958	5,038	16,731	5,554	11,177	7·20	23·90	7·94	15·97	360	21·5
1959	5,387	17,111	5,497	11,614	7·57	24·04	7·72	16·32	345	20·2
1960	5,323	16,926	5,697	11,229	7·36	23·41	7·88	15·53	366	21·6
1961	5,150	17,078	5,729	11,349	6·98	23·15	7·77	15·39	336	19·7
1962	5,466	17,064	5,810	11,254	7·23	22·58	7·69	14·89	380	22·3
1963	5,755	17,290	5,976	11,314	7·40	22·23	7·68	14·55	353	20·4
1964	6,023	16,685	6,429	10,256	7·55	20·93	8·06	12·86	328	19·7
1965	6,448	16,186	6,274	9,912	7·91	19·85	7·70	12·16	351	21·7
1966	7,001	17,007	6,772	10,235	8·36	20·31	8·09	12·22	329	19·3
1967	7,430	18,023	6,779	11,244	8·47	20·55	7·73	12·82	314	17·4
1968	8,086	19,541	7,468	12,073	8·88	21·47	8·21	13·27	398	20·4

(a) Rates for 1965 and earlier have been adjusted to conform to final census results; those for later years are subject to revision after the 1971 Census. (b) Excludes deaths of defence personnel, whether in Australia or overseas, between September 1939 and June 1947. (c) Excess of *Live births registered* over *Deaths registered*; see also note (b). (d) Deaths under one year of age; included in *Deaths registered*. (e) Per 1,000 live births. (f) Not available.

PUBLIC REVENUE AND EXPENDITURE: CONSOLIDATED REVENUE FUND
($'000)

Year (a)	Revenue					Total revenue	Expenditure					Total expenditure
	Commonwealth funds	Public utilities	Departmental (b)	Taxation	Territorial (c)		Public utilities	Interest and sinking fund (d)	Departmental: Education	Departmental: Health	Departmental: Other	
1840	|	|	|	|	5	34	|	|	n.a.	|	|	30
1850	|	|	|	|	4	38	|	n.a.	n.a.	|	|	33
1860	|	|	|	|	35	140	|	|	3	|	|	123
1870	n.a.	n.a.	n.a.	n.a.	40	196	n.a.	|	7	n.a.	n.a.	226
1880	|	|	|	|	72	360	|	40	19	|	|	409
1890	|	|	|	|	217	829	|	144	23	|	|	803
1900	|	2,612	182	244	380	5,751	1,863	880	138	198	2,049	5,231
1906	1,746	3,929	373	521	452	7,118	2,792	1,644	324	282	2,048	7,265
1907	1,560	3,636	469	532	507	6,803	2,566	1,730	338	298	1,857	6,980
1908	1,507	3,600	439	555	532	6,753	2,290	1,819	350	312	1,798	6,758
1909	1,234	3,552	466	593	577	6,534	2,189	1,900	354	356	1,735	6,737
1910	1,407	3,916	551	673	649	7,315	2,440	2,006	367	328	1,533	6,895
1911	1,139	4,417	573	650	802	7,701	2,704	2,092	404	315	1,713	7,469
1912	1,277	4,477	574	705	772	7,933	2,903	2,203	477	367	1,960	8,202
1913	1,271	5,339	712	787	776	9,193	3,594	2,416	553	412	2,047	9,574
1914	1,282	5,991	986	772	808	10,411	4,004	2,768	608	449	1,895	10,682
1915	1,263	5,513	753	744	793	10,281	3,814	3,093	625	492	1,559	11,413
1916	1,232	5,738	854	816	783	10,714	3,951	3,328	635	531	1,397	11,410
1917	1,189	5,279	931	805	660	9,154	3,913	3,532	668	561	1,561	10,554
1918	1,198	5,255	883	899	632	9,245	3,869	3,750	708	444	1,503	10,657
1919	1,171	5,362	962	1,258	690	9,890	4,131	3,946	732	482	1,602	11,194
1920	1,197	6,364	1,188	1,688	818	11,727	5,156	4,124	829	642	1,931	13,063
1921	1,188	7,517	1,618	1,911	875	13,579	6,290	4,459	980	590	2,231	14,953
1922	1,168	7,787	1,822	1,762	870	13,814	6,120	4,875	1,112	540	2,172	15,278
1923	1,166	8,000	2,092	1,975	807	14,415	5,847	5,150	1,126	538	2,100	15,226
1924	1,171	8,776	2,173	2,347	925	15,731	6,065	5,668	1,161	544	2,229	16,190
1925	1,176	9,154	2,576	2,448	1,004	16,763	6,195	6,193	1,171	587	2,191	16,880
1926	1,177	9,280	2,831	2,836	1,083	17,616	6,577	6,596	1,010	610	2,400	17,815
1927	2,306	9,941	3,274	2,423	1,102	19,502	6,958	6,590	1,294	604	3,351	19,445
1928	1,618	10,589	3,205	2,593	1,222	19,616	7,467	6,358	1,337	606	3,246	19,669
1929	1,623	10,772	3,312	2,740	1,029	19,896	7,885	6,671	1,358	634	3,278	20,448
1930	1,547	10,596	3,134	2,906	950	19,501	8,073	6,891	1,385	649	2,872	20,537
1931	1,547	9,228	3,279	2,269	678	17,374	6,654	7,243	1,346	486	3,950	20,215
1932	1,547	8,818	2,766	2,014	585	16,071	5,724	7,015	1,098	328	4,543	19,186
1933	1,947	8,873	2,701	2,257	558	16,664	5,682	7,009	1,108	333	3,761	18,392
1934	2,147	8,867	2,240	2,737	626	16,963	5,870	7,095	1,153	309	3,560	18,541
1935	2,413	9,837	1,562	3,804	812	18,663	6,391	7,100	1,225	326	3,342	18,997
1936	2,617	10,366	1,677	4,372	767	20,067	6,756	7,135	1,331	341	3,595	19,891
1937	2,013	10,633	1,727	4,807	773	20,371	7,247	7,237	1,432	381	4,024	21,113
1938	2,097	11,148	1,980	5,190	749	21,638	7,249	7,579	1,474	380	4,158	21,659
1939	2,087	11,159	1,786	5,728	634	21,899	7,857	7,779	1,514	401	3,992	22,340
1940	2,137	11,102	1,942	5,992	632	22,240	7,662	8,021	1,545	416	4,070	22,534
1941	2,247	11,366	1,916	6,255	638	22,864	7,534	8,114	1,568	421	4,262	22,842
1942	2,207	12,133	2,204	6,222	620	23,880	8,282	8,204	1,662	436	4,293	23,877
1943	7,852	13,518	2,497	1,330	634	26,303	9,377	8,183	1,627	458	5,564	26,254
1944	7,935	13,626	2,868	1,553	700	27,178	9,870	8,185	1,747	506	5,780	27,102
1945	8,044	13,618	3,402	1,715	697	27,908	10,064	8,251	1,778	485	6,261	27,899
1946	9,960	13,303	2,519	1,936	709	28,815	10,825	8,168	2,005	1,010	5,621	28,815
1947	11,461	11,769	3,105	2,138	1,053	29,962	10,866	8,012	2,447	1,369	5,910	30,057
1948	14,515	13,242	3,575	2,354	1,202	35,421	13,996	8,089	3,298	1,841	7,280	36,125
1949	17,136	15,032	4,564	2,683	1,106	41,121	16,720	8,215	3,519	2,613	9,942	42,756
1950	22,975	17,792	5,733	3,240	1,225	51,622	20,237	8,508	4,160	3,633	13,096	51,574
1951	25,343	19,085	5,911	3,912	1,230	56,312	21,974	8,994	5,269	4,465	13,180	55,994
1952	29,923	24,335	6,863	4,633	1,300	67,910	27,490	9,741	7,262	6,269	15,696	69,094
1953	39,056	22,385	8,557	5,247	1,513	77,768	32,044	10,611	8,686	6,926	17,639	78,784
1954	38,342	29,860	8,378	6,468	1,929	86,292	35,234	12,147	9,503	7,675	18,797	86,497
1955	38,759	32,645	9,433	7,258	2,014	91,440	36,089	13,857	11,217	8,026	19,838	92,408
1956	43,373	33,969	9,779	8,036	2,498	99,225	39,184	15,451	12,482	9,344	21,501	102,886
1957	46,759	37,133	12,548	9,027	2,433	108,662	42,022	17,043	13,636	10,067	33,645	112,487
1958	51,808	34,525	13,640	10,729	2,516	114,108	40,103	19,303	15,172	11,026	25,572	116,355
1959	55,496	36,080	14,522	10,368	2,783	120,136	40,317	20,844	15,819	11,967	29,244	123,506
1960	58,871	38,575	15,696	11,834	2,878	128,776	42,418	23,053	17,282	13,565	29,861	131,587
1961	65,519	40,830	16,372	12,079	2,797	138,665	41,072	24,628	19,541	15,018	35,160	141,075
1962	73,430	42,456	16,549	12,926	3,283	149,852	42,097	27,250	21,417	14,935	40,131	151,780
1963	75,847	43,559	18,134	14,762	3,501	157,182	42,267	29,980	22,850	16,073	41,254	158,687
1964	78,988	45,376	20,948	17,604	3,751	167,888	44,247	31,771	25,880	18,705	43,430	170,681
1965 (e)	88,565	39,778	26,712	19,512	4,107	180,143	43,360	34,669	29,133	21,160	49,401	184,840
1966	103,459	45,683	28,753	22,574	4,598	206,655	47,106	37,926	34,016	23,086	56,869	206,665
1967	106,748	52,787	31,461	27,536	7,655	228,146	53,182	41,662	36,746	26,429	61,512	228,174
1968	112,617	56,226	33,135	34,916	11,845	250,738	60,728	43,864	41,224	29,294	65,362	249,909

n.a. denotes ' not applicable ' or ' not available '.

(a) From 1900, year ended 30 June. (b) Reimbursements, fees, etc. (c) Revenue from sales, leases, licences and royalties relating to land, mining and timber. (d) From 1966-1967 includes exchange on overseas payments. (e) Figures shown under *Public utilities* for 1964-65 and later exclude particulars of the Metropolitan Water Supply, Sewerage and Drainage Department, which was replaced by a Board from 1 July 1964.

NET EXPENDITURE FROM LOAN FUNDS; PUBLIC DEBT
($'000)

Year (a)	Net expenditure from loan funds on public works and services (b)							Public debt (at end of year)	
	Railways, tramways and omnibuses	Electricity supply	Harbours, rivers, light-houses, etc.	Water supplies, sewerage, drainage and irrigation	Public buildings	Other	Total	Gross amount outstanding	Sinking fund
1860	....	....	....	....	....	....	....	4	....
1870	....	....	....	....	....	....	....	....	....
1880	(c) 549		(d) 38	....	....	(e)	(d) 802	722	(e)
1890	3		6	2	(f) 76	(e) 32		2,735	170
1900	302		395	949	....	110		1,757	23,349	754
1906	440		57	37	6	204	745	36,117	2,641
1907	659		192	183	224	543	1,802	38,445	3,200
1908	612		147	256	213	240	1,467	40,987	3,809
1909	1,095		162	229	194	343	2,024	43,904	4,467
1910	908		174	199	152	626	2,058	46,575	5,139
1911	(g) 1,818		(g) 67	(g) 307	(g) 106	(g) 816	(g) 3,114	47,408	5,090
1912	2,641		372	250	262	1,095	4,619	52,567	5,837
1913	3,988		301	790	140	1,599	6,818	60,553	6,619
1914	2,333		180	664	88	2,561	5,826	68,840	7,384
1915	1,386		331	496	162	2,668	5,043	74,045	8,138
1916	895		218	331	81	1,643	3,169	78,279	9,057
1917	675		244	153	47	592	1,710	81,830	10,072
1918	416		170	136	35	1,351	2,108	84,608	11,142
1919	375		140	93	43	1,448	2,099	87,274	12,278
1920	242		204	94	21	4,765	5,327	93,644	13,656
1921	398		237	427	50	4,061	5,173	98,079	15,283
1922	1,207		183	435	89	2,996	4,910	109,920	16,740
1923	1,359		240	402	37	4,740	6,779	116,972	17,562
1924	1,303		278	871	177	5,244	7,874	125,532	18,747
1925	1,243		362	1,301	182	5,110	8,198	128,987	19,970
1926	1,540		439	1,357	156	4,667	8,157	140,022	21,309
1927	1,559		382	884	235	4,901	7,960	141,212	17,514
1928	1,902		530	1,132	256	4,577	8,397	152,856	17,798
1929	1,825		528	1,092	182	4,255	7,882	(h) 138,711	(h) 1,983
1930	1,819		529	610	108	4,226	7,291	142,389	2,081
1931	878		257	420	Cr. (i)	1,457	3,012	153,130	2,621
1932	263		155	1,152	....	1,055	2,624	159,416	2,618
1933	374		485	1,355	69	1,838	4,121	167,029	2,693
1934	659		492	1,606	196	2,344	5,297	171,696	743
1935	997		610	2,155	213	1,103	5,076	177,180	1,048
1936	946		602	2,487	169	700	4,903	180,688	1,138
1937	491		352	2,303	178	741	4,064	184,666	1,292
1938	950		201	1,843	183	1,144	4,321	187,424	614
1939	441		184	1,777	230	640	3,272	190,945	719
1940	200		104	1,615	732	974	3,624	192,461	608
1941	214	18	152	1,649	306	480	2,819	195,583	1,147
1942	110	25	111	605	70	437	1,359	194,718	535
1943	157	92	133	100	55	217	754	193,976	347
1944	49	31	Cr. 143	75	166	34	212	192,957	140
1945	140	11	61	150	241	492	1,094	191,790	254
1946	142	208	75	473	451	276	1,625	193,852	1,008
1947	535	332	173	1,453	772	821	4,087	198,005	1,091
1948	676	1,471	316	1,388	1,097	125	5,074	200,549	309
1949	913	2,131	449	1,626	1,099	942	7,161	207,377	126
1950	4,496	4,691	804	2,002	1,357	2,859	16,209	219,100	142
1951	3,723	6,591	1,164	4,091	2,003	3,081	20,653	246,374	17
1952	15,198	6,684	2,694	4,803	2,729	3,409	35,517	276,577	647
1953	13,533	179	2,422	4,858	5,432	8,787	35,213	306,144	1,861
1954	11,295	1,406	2,328	3,939	3,144	6,276	28,388	331,565	822
1955	9,752	1,410	1,920	5,661	3,993	6,726	29,462	355,763	442
1956	6,139	2,049	1,638	5,516	4,187	7,098	26,629	377,465	245
1957	5,519	4,200	950	7,119	5,599	9,169	32,556	410,290	112
1958	4,209	2,480	1,398	7,694	5,891	6,599	28,272	436,857	147
1959	5,711	2,200	1,428	8,395	7,410	7,199	32,342	464,237	173
1960	4,953	1,553	1,373	9,547	8,723	6,355	32,504	493,575	171
1961	4,221	400	1,966	10,314	10,479	8,037	35,418	523,070	94
1962	5,432	300	2,587	10,952	12,032	6,449	37,751	555,130	222
1963	6,204	500	2,438	10,770	13,420	5,563	38,894	587,336	485
1964	7,496	....	3,028	10,537	15,630	6,409	43,100	626,045	442
1965	6,800	794	2,822	10,957	19,948	5,457	46,779	665,620	473
1966	7,628	1,434	2,583	12,667	19,908	3,580	47,800	705,514	267
1967	9,068	2,427	1,746	13,642	18,230	5,902	51,015	748,601	216
1968	7,750	4,542	2,402	14,552	18,816	5,115	53,177	792,969	408

(a) From 1900, year ended 30 June. Sinking fund at 31 March from 1900 to 1928. (b) From 1928 includes expenditure from Loan Suspense Account. (c) Total amount for the years 1877 to 1881. (d) Total amount for the years 1872 to 1881. (e) Not available. (f) Includes expenditure prior to 1890. (g) Including readjustments for previous years. (h) Reduction due to operation of Financial Agreement Act of 1928. (i) Less than $500.

BANKING AND INSURANCE

Year	Trading Banks			Savings banks (c)		Insurance			
						Life		General (e) (f)	
						Sum insured under policies existing at end of year (d)			
	Depositors' balances (a)	Loans (other than loans to authorised dealers in the short-term money market), advances and bills discounted (a)	Weekly debits to customers' accounts (b)	Operative accounts at end of year	Depositors' balances at end of year	Ordinary (including superannuation)	Industrial	Premiums	Claims
	$'000	$'000	$m		$'000	$'000	$'000	$'000	$'000
1870	(g)	(g)		895	27	(g)	(g)		
1880	(g)	(g)		1,299	45	(g)	(g)		
1890	1,904	2,809		3,014	69	(g)	(g)		
1900	8,781	5,514		33,646	2,598	6,916	439		
1906	11,102	9,228		63,573	4,632	11,252	731		
1907	10,696	10,123		66,737	5,266	11,242	711		
1908	9,970	10,902		70,340	5,762	11,546	890	(g)	(g)
1909	10,232	10,977		75,852	6,111	11,874	961		
1910	12,627	12,228		84,262	6,955	12,717	1,170		
1911	14,331	15,000		97,147	8,178	13,996	1,369		
1912	13,395	16,824		108,622	8,801	14,925	1,662		
1913	12,841	16,353		121,201	9,350	15,277	2,017		
1914	13,787	16,633		134,510	9,851	15,842	2,267		
1915	15,229	17,418		144,777	10,285	16,058	2,451		
1916	16,099	18,635		156,458	10,667	16,660	2,731		
1917	17,178	18,285		171,207	11,683	17,239	3,042	721	196
1918	19,374	19,170		182,140	12,580	18,103	3,456	783	303
1919	21,606	20,829		196,584	14,005	19,851	3,907	803	295
1920	24,742	21,594		211,415	14,516	21,640	4,089	1,080	368
1921	24,004	21,833		226,468	15,433	24,183	4,699	1,112	684
1922	24,519	21,531	(g)	237,505	15,519	25,586	5,189	1,195	658
1923	25,349	22,796		250,214	16,067	27,544	5,707	1,242	435
1924	26,245	23,313		264,842	16,436	29,310	6,360	1,528	543
1925	27,200	24,095		277,701	16,608	31,739	6,811	1,669	724
1926	(h) 28,887	(h) 25,745		292,353	17,940	33,970	7,317	1,832	901
1927	29,301	29,233		309,176	13,389	36,279	8,042	(h) 831	(h) 432
1928	31,025	30,592		330,284	21,291	38,926	8,750	2,111	1,200
1929	26,811	34,480		350,046	23,218	41,268	9,366	2,391	1,205
1930	25,524	41,773		367,665	23,457	41,656	9,003	2,452	1,163
1931	24,455	41,635		371,662	21,735	39,906	8,353	1,914	971
1932	28,563	39,292		206,997	20,435	39,181	8,585	1,693	655
1933	29,785	38,433		194,095	20,129	39,447	8,918	1,786	796
1934	32,853	38,742		192,915	20,798	40,631	9,394	1,746	801
1935	36,206	41,061		197,611	21,858	42,899	9,945	1,929	910
1936	38,731	43,232		208,990	23,034	45,608	10,688	2,176	1,015
1937	39,463	44,532		217,247	23,670	48,857	11,373	2,410	1,366
1938	41,230	45,141		225,118	24,075	51,653	11,944	2,641	1,526
1939	41,181	47,774		232,564	24,792	53,853	12,609	2,746	1,462
1940	42,219	47,529		233,649	23,720	54,708	13,086	2,884	1,460
1941	47,099	45,617		238,820	25,042	55,842	13,875	2,792	1,236
1942	51,918	43,638		250,153	27,642	55,881	15,311	2,806	1,245
1943	61,135	37,827		279,469	37,769	57,865	16,656	2,347	1,014
1944	71,529	33,462		301,225	51,581	61,380	17,962	2,369	897
1945	74,846	31,504		316,565	63,526	66,254	19,024	2,565	1,154
1946	(i) 66,652	(i) 33,726	(j) 11·6	340,737	76,578	77,608	21,036	2,890	1,223
1947	72,490	45,388	14·2	349,091	73,250	88,016	23,054	3,503	1,787
1948	82,032	48,754	17·4	358,709	72,365	98,891	25,139	4,188	2,089
1949	100,971	49,904	21·4	365,130	75,070	111,213	27,127	5,071	2,053
1950	116,458	55,301	27·4	378,670	79,225	126,332	29,503	5,913	2,440
1951	149,244	66,680	38·6	392,790	89,345	148,724	32,460	7,360	3,341
1952	170,923	83,353	43·6	403,678	94,342	171,007	35,257	9,358	5,261
1953	170,234	87,353	44·2	414,288	99,589	195,499	38,110	10,736	5,453
1954	181,863	106,429	50·8	422,480	105,229	221,568	40,240	11,427	5,276
1955	180,895	137,830	52·4	426,637	107,258	251,543	41,487	12,563	6,281
1956	174,070	142,156	53·9	446,419	115,868	282,139	42,114	13,546	7,126
1957	185,576	135,074	57·1	473,548	125,386	317,264	42,535	13,792	8,202
1958	186,478	141,198	60·4	497,690	131,896	352,360	43,003	15,601	7,807
1959	180,300	147,106	61·5	527,079	142,998	396,322	43,279	17,169	9,165
1960	192,076	142,064	69·7	550,966	157,246	459,740	44,325	19,951	10,671
1961	190,094	146,244	75·7	577,619	161,424	523,636	44,745	21,607	12,770
1962	209,274	139,204	80·4	625,070	181,056	597,892	46,754	22,914	12,255
1963	219,952	153,528	88·2	683,417	208,812	679,161	47,983	24,761	14,723
1964	242,268	164,878	* 96·4	736,009	239,766	774,550	50,588	26,285	15,629
1965	272,430	186,000	106·3	786,340	261,654	881,652	53,565	28,224	16,108
1966	310,432	195,190	*122·4	848,562	292,871	1,005,119	57,916	32,385	18,247
1967	355,899	212,023	138·6	905,349	330,807	1,164,613	63,960	36,535	20,995
1968	398,837	252,627	169·1	970,120	373,602	1,383,330	69,961	41,762	24,246

(a) Average based on amounts as at close of business each week. From 1927, year ended 30 June. (b) Weekly average for year ended 30 June. Excludes debits to Australian Government accounts at city branches. From 1946-47 includes The Rural and Industries Bank of Western Australia (Rural Department). (c) From 1900, year ended 30 June. (d) Actual date varies according to the financial year of individual insurance companies. (e) From 1927, year ended 30 June. (f) Excludes transactions of The Motor Vehicle Insurance Trust, which became the sole insurer in respect of motor vehicle (third party) insurance from 1 July 1949. (g) Not available. (h) Six months ended 30 June. (i) Average for nine months to 30 June. (j) Ten months ended June 1946. * Revised.

TRANSPORT AND COMMUNICATION

Year	State Government railways (a)				Private railways	Posts, telegraphs and telephones			Shipping (h) (i)	
	Route miles at end of year (b)	Operating revenue (c)	Operating expenses (c)	Paying goods and livestock carried (c)	Route miles at end of year (d)	Telegraph and telephone lines (e)	Revenue (f) (g)	Expenditure (f) (g)	Clearances to ports outside the State	
									Number	Net tons
		$'000	$'000	'000 tons		miles	$'000	$'000		'000
1870	....	....	....	....	....	....	8	14	131	68
1880	34	5	8	2	38	1,568	26	60	168	126
1890	188	90	103	61	385	2,961	53	73	267	420
1900	1,355	2,519	1,723	1,384	623	6,053	413	498	747	1,606
1906	1,612	3,269	2,404	2,097	743	6,451	519	591	609	1,792
1907	1,764	3,075	2,272	2,091	765	6,686	521	638	597	1,760
1908	1,943	3,004	2,015	2,059	798	6,868	544	692	592	1,817
1909	2,045	3,017	1,948	1,997	842	6,719	553	672	650	2,054
1910	2,145	3,275	2,194	2,242	902	7,480	613	785	726	2,372
1911	2,376	3,689	2,433	2,489	948	7,580	629	904	781	2,566
1912	2,598	3,769	2,688	2,542	981	7,758	642	988	765	2,614
1913	2,854	4,076	3,013	2,866	952	8,513	673	1,265	873	3,023
1914	2,967	4,514	3,144	3,170	960	8,804	688	1,142	(j) 527	(j) 1,795
1915	3,332	4,116	2,996	2,524	976	(k)	692	1,088	655	2,384
1916	3,332	4,176	3,023	2,555	993	8,791	734	1,052	689	2,493
1917	3,425	3,755	2,897	2,400	1,010	8,342	761	973	731	2,558
1918	3,491	3,633	2,903	2,259	983	8,313	778	890	315	1,102
1919	3,539	3,746	3,135	2,379	898	8,328	903	926	636	2,112
1920	3,539	4,584	4,001	2,614	918	8,270	886	1,067	729	2,659
1921	3,539	5,440	4,844	2,604	895	8,318	1,084	1,236	789	2,826
1922	3,539	5,656	4,658	2,548	878	8,413	1,184	1,473	874	3,231
1923	3,555	5,832	4,421	2,624	865	8,706	1,215	1,725	709	3,088
1924	3,629	6,455	4,596	3,023	812	10,098	1,217	2,611	673	3,101
1925	3,733	6,719	4,710	3,285	854	11,031	1,270	1,943	805	3,658
1926	3,865	6,675	5,018	3,237	884	11,402	1,360	2,054	685	3,256
1927	3,918	7,216	5,371	3,439	872	11,858	1,480	1,875	799	3,797
1928	3,977	7,716	5,822	3,698	838	11,526	1,598	1,926	812	3,806
1929	4,079	7,600	6,111	3,670	842	11,691	1,691	1,831	808	3,674
1930	4,111	7,318	6,226	3,530	847	11,804	1,818	1,841	794	3,932
1931	4,181	6,398	5,222	3,154	826	11,812	1,672	1,626	742	3,686
1932	4,235	5,845	4,247	2,848	830	11,699	1,576	1,234	694	3,530
1933	4,338	5,864	4,223	2,840	845	11,723	1,639	1,266	691	3,564
1934	4,360	5,839	4,373	2,652	854	11,785	1,696	1,336	683	3,568
1935	4,359	6,624	4,765	2,903	869	11,505	1,845	1,467	730	3,775
1936	4,358	6,892	4,976	2,887	880	11,532	1,949	1,653	725	3,831
1937	4,357	6,924	5,240	2,798	873	12,090	2,078	1,779	761	3,754
1938	4,376	7,356	5,420	3,062	854	12,057	2,163	1,845	866	4,111
1939	4,378	7,198	5,823	2,859	844	12,071	2,217	2,034	930	4,327
1940	4,381	7,112	5,657	2,659	831	12,040	2,235	1,983	805	3,751
1941	4,381	7,144	5,516	2,604	815	12,080	2,300	1,990	556	3,087
1942	4,381	7,993	6,052	2,638	818	12,118	2,601	2,086	492	2,508
1943	4,381	8,836	6,895	2,505	849	12,164	3,084	2,258	312	1,467
1944	4,381	8,773	7,592	2,560	829	12,523	3,278	2,570	385	1,580
1945	4,381	8,552	7,529	2,904	798	12,435	3,364	2,608	382	1,528
1946	4,381	8,213	8,053	2,728	706	12,429	3,463	2,914	490	2,473
1947	4,348	8,092	8,848	2,577	759	12,423	3,690	3,326	572	2,646
1948	4,348	9,198	11,140	2,858	739	12,661	3,923	4,418	752	3,431
1949	4,321	10,430	13,405	2,737	734	12,874	4,132	5,792	950	4,678
1950	4,252	12,944	15,003	2,843	774	14,439	4,739	6,477	1,006	5,272
1951	4,228	14,392	17,238	3,033	752	14,120	5,511	8,303	1,060	5,552
1952	4,113	18,327	21,331	3,063	752	14,598	7,290	9,849	1,045	5,524
1953	4,108	15,945	24,175	2,619	724	14,904	7,792	10,924	1,025	5,407
1954	4,111	22,749	27,512	3,206	758	14,946	8,360	11,746	1,005	5,320
1955	4,111	25,061	27,871	3,407	748	15,149	9,088	11,854	1,136	6,144
1956	4,119	26,548	29,986	3,793	726	15,284	9,828	13,844	1,268	6,776
1957	4,117	28,088	32,023	4,223	706	15,482	10,792	14,808	1,244	6,531
1958	4,117	25,950	29,685	3,589	575	15,579	11,685	16,222	1,219	6,499
1959	4,117	27,400	29,865	3,913	575	15,690	12,219	17,144	1,282	6,607
1960	4,120	30,077	30,816	4,533	517	15,839	14,404	18,148	1,403	7,234
1961	4,123	33,076	31,103	4,833	469	16,082	15,817	18,566	1,598	8,547
1962	(l) 3,851	35,608	31,527	5,342	(m) 558	16,153	16,284	*19,509	1,687	8,962
1963	(l) 3,797	33,429	31,150	4,793	552	16,569	17,929	21,736	1,528	8,252
1964	(l) 3,677	35,190	32,250	5,187	413	16,843	19,997	24,060	1,580	8,627
1965	3,733	36,686	32,920	5,229	(n) 21	17,336	23,062	27,795	1,560	8,593
1966	3,747	43,669	35,985	6,384	285	17,245	25,886	30,912	1,711	9,528
1967	3,815	49,120	40,170	7,873	282	17,295	28,069	36,328	*1,690	*10,977
1968	3,815	52,773	42,623	8,910	283	17,579	33,154	47,107	1,770	12,916

(a) From 1900, year ended 30 June. (b) Open for general and passenger traffic. (c) From 1942 includes operations of Railway Road Services, which began in November 1941. (d) From 1900 to 1964 includes 277 miles of line open for general and passenger traffic. From 1915, year ended 30 June. (e) At end of year; from 1916, at 30 June. From 1935, figures represent pole route mileage. (f) From 1920, year ended 30 June. (g) Figures represent revenue actually collected, and actual payments made, as recorded for Treasury purposes. (h) From 1915, year ended 30 June. (i) From 1966–67 excludes vessels of 200 net tons and under. (j) Six months ended 30 June. (k) Complete records not available. (l) Decrease due to proclamations of closure issued by authority of the *Railways (Cue-Big Bell and other Railways) Discontinuance Act, 1960.* (m) Increase due to the transfer of all government-operated timber railways to private control. (n) Decrease due to transfer of Midland Railway Company to Western Australian Government Railways, and to closure of timber and mining railways. *Revised.

MOTOR VEHICLE REGISTRATIONS; EXPORTS OF WHEAT

Year	New motor vehicles registered (*a*)				Motor vehicles on register (*b*)				Wheat exports (*c*)	
	Motor cars (*d*)	Utilities, vans, trucks and omnibuses	Motor cycles (*e*)	Total	Motor cars (*f*)	Utilities, vans, trucks and omnibuses	Motor cycles (*e*)	Total	Quantity ('000 bushels)	Value ($'000)
1860									(*g*)	(*g*)
1870									....	....
1880									15	8
1890									....	....
1900									1	(*g*)
1906									(*g*)	(*g*)
1907									490	193
1908					n.a.				212	90
1909									625	258
1910									2,015	813
1911									2,231	774
1912									502	200
1913						n.a.	n.a.	n.a.	4,106	1,528
1914									(*h*) 7,286	(*h*) 2,688
1915									(*g*)	(*g*)
1916									3,931	2,047
1917	n.a.	n.a.	n.a.	n.a.					7,036	3,239
1918					2,538				1,694	875
1919					2,938				1,651	800
1920					3,404				9,151	5,083
1921					4,181				6,576	5,860
1922					4,403				10,357	6,076
1923					7,280				5,363	2,942
1924					11,162				10,925	5,085
1925					15,261				14,986	10,316
1926					20,011				13,175	8,373
1927					19,451	5,819			16,330	9,334
1928					24,205	8,104			26,194	13,989
1929					27,174	9,767			26,091	13,384
1930					31,130	11,358	7,707	50,195	24,953	12,258
1931					27,741	10,880	6,777	45,398	42,440	10,577
1932					28,608	12,094	6,700	47,402	36,868	10,647
1933					27,969	12,626	6,700	47,295	30,695	9,323
1934					28,761	13,937	6,284	48,982	23,360	6,834
1935					30,578	15,530	6,597	52,705	24,936	7,844
1936					32,329	17,362	6,861	56,552	14,897	5,607
1937					34,180	19,919	6,977	61,076	13,780	7,255
1938					36,386	22,596	7,079	66,061	22,038	9,667
1939	3,297	1,814	568	5,679	38,039	24,441	7,199	69,679	22,614	6,055
1940	2,871	1,517	399	4,787	38,907	25,026	6,789	70,722	15,330	4,669
1941	1,015	632	200	1,847	36,995	24,788	6,704	68,487	14,856	5,858
1942	250	353	74	677	29,022	21,625	4,057	54,704	9,774	4,021
1943	218	151	57	426	29,750	21,189	3,935	54,874	5,138	2,111
1944	19	1,102	109	1,230	30,295	22,459	4,324	57,078	12,057	5,813
1945	40	597	192	829	30,635	23,943	4,501	59,079	23,590	14,955
1946	101	456	271	828	31,408	28,904	6,799	67,111	13,510	11,696
1947	1,354	1,126	678	3,158	32,879	32,097	8,199	73,175	6,802	8,964
1948	2,963	1,975	1,059	5,997	35,596	35,285	8,877	79,758	19,312	33,809
1949	4,684	3,122	1,769	9,575	40,119	38,901	10,974	89,994	18,401	28,100
1950	8,926	4,707	2,346	15,979	48,632	43,206	12,897	104,735	21,510	33,384
1951	8,201	6,610	2,802	17,613	56,235	47,908	14,535	118,678	30,510	51,688
1952	8,836	5,750	2,740	17,326	64,277	52,627	16,047	132,951	26,823	45,728
1953	6,879	4,881	1,416	13,176	69,917	56,445	15,565	141,927	23,319	40,347
1954	9,926	5,601	1,258	16,785	78,312	60,362	15,243	153,917	6,800	11,272
1955	12,394	5,993	1,202	19,589	90,255	63,870	14,662	168,787	19,335	27,478
1956	10,100	5,203	1,089	16,392	99,206	62,809	12,959	174,974	22,773	28,860
1957	9,321	4,418	1,192	14,931	104,506	63,315	12,731	180,552	46,796	61,291
1958	10,140	5,562	1,702	17,404	111,825	63,598	12,631	188,054	26,644	40,861
1959	10,389	5,140	2,071	17,600	119,957	65,588	12,814	198,359	23,503	33,113
1960	13,492	5,695	1,949	21,136	130,476	68,702	12,876	212,054	36,713	49,442
1961	15,161	5,542	1,080	21,783	141,612	70,974	12,589	225,175	52,480	71,280
1962	17,082	5,833	902	23,817	155,447	74,224	12,390	242,061	73,883	104,356
1963	23,175	6,367	754	30,296	170,781	75,748	11,649	258,178	50,720	72,197
1964	24,958	7,013	628	32,599	189,251	78,239	10,449	277,939	55,022	77,881
1965	23,304	6,897	553	30,754	202,914	79,316	9,244	291,474	40,507	56,955
1966	23,418	9,170	706	33,294	219,816	84,423	8,777	313,016	69,372	96,515
1967	27,922	9,404	1,158	38,484	240,519	87,661	8,881	337,061	84,980	126,918
1968	33,368	10,448	1,525	45,341	263,552	92,563	9,632	365,747	87,200	121,764

n.a. denotes ' not applicable ' or ' not available '.

(*a*) Year ended 30 June. (*b*) From 1929, at 30 June; for earlier years, at various dates. For years before 1946, excludes Commonwealth-owned vehicles; from 1946, includes Commonwealth-owned vehicles other than those of defence services. From 1956, new series based on the results of the periodic Census of Motor Vehicles. (*c*) From 1915, year ended 30 June. (*d*) From 1959, includes station wagons previously included with utilities, vans, trucks and omnibuses. (*e*) Including motor scooters. (*f*) From June 1957, includes station wagons previously included with utilities, vans, trucks and omnibuses. (*g*) Less than 500. (*h*) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Wool				Meats—Fresh, chilled or frozen					
	Greasy (b)		Degreased		Beef and veal		Mutton and lamb		Pigmeat	
	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 lb	$'000	'000 lb	$'000	'000 lb	$'000	'000 lb	$'000	'000 lb	$'000
1840	50	5			....	....	....	....	....	....
1850	310	31			....	....	....	....	....	....
1860	657	99	(c)	(c)	....	....	....	....	....	....
1870	1,788	179			....	....	....	....	....	....
1880	4,343	543			....	....	....	....	....	....
1890	6,969	523			....	....	....	....	....	....
1900	8,658	505	436	36	(d)	(d)	(d)	(d)	(d)	(d)
1906	14,678	1,157	364	49	....	....	16	1	....	....
1907	19,914	1,583	296	41	....	....	370	11	....	....
1908	20,303	1,239	440	35	....	....	95	3	....	....
1909	26,431	1,951	714	75	....	....	....	....	1	(e)
1910	25,777	1,894	420	40	....	....	....	....	....	....
1911	24,981	1,835	176	16	....	....	....	....	....	....
1912	27,902	2,052	225	19	....	....	....	....	....	....
1913	25,505	1,933	227	21	....	....	....	....	(e)	....
1914 (f)	4,846	361	35	3	....	....	....	....	....	....
1915	23,906	1,626	99	10	....	....	....	....	....	....
1916	28,869	2,517	235	29	4,311	176	41	2	....	....
1917	24,327	2,831	78	10	....	....	....	....	....	....
1918	10,519	1,056	113	15	1,188	36	115	4	324	15
1919	29,022	3,775	623	129	239	6	138	4	133	6
1920	56,284	7,218	3,316	657	662	33	....	....	....	....
1921	42,048	4,593	1,084	183	5,762	248	118	7	45	5
1922	54,512	5,673	4,181	731	2,479	79	....	....	....	....
1923	39,275	5,986	2,651	479	9,955	305	866	55	1	(e)
1924	42,359	8,028	1,516	446	10,647	272	446	26	....	....
1925	33,722	7,030	1,293	443	7,106	198	....	....	....	....
1926	48,024	6,703	1,666	353	8,119	240	....	....	....	....
1927	52,131	6,694	1,657	342	6,697	198	....	....	....	....
1928	60,402	9,734	839	192	11,026	272	227	15	....	....
1929	56,202	7,615	843	207	9,313	226	....	....	....	....
1930	61,777	5,422	1,025	136	11,381	272	....	....	....	....
1931	69,397	4,652	1,386	121	11,315	244	855	35	209	7
1932	64,591	4,540	1,966	151	11,240	235	2,113	103	1,221	53
1933	68,192	4,871	2,695	236	14,406	276	384	15	949	37
1934	69,998	9,131	2,728	491	12,602	234	1,352	49	668	29
1935	80,550	6,479	3,451	348	12,072	233	4,979	236	1,194	55
1936	78,488	8,892	3,081	451	17,036	321	5,557	282	1,550	65
1937	58,324	7,854	2,448	475	11,227	249	4,555	247	1,306	67
1938	53,452	5,877	2,706	446	11,445	314	8,705	470	823	52
1939	68,409	6,072	3,606	469	16,501	497	11,775	638	1,278	80
1940	65,279	7,603	3,648	661	10,639	329	10,285	533	4,990	324
1941	19,983	2,601	2,799	518	12,309	407	9,691	496	13,261	851
1942	75,739	9,836	4,928	1,030	7,883	327	8,122	435	10,295	682
1943	28,514	4,163	2,731	594	(e)	(e)	8,785	458	2,321	155
1944	68,663	10,842	4,619	917	3,185	190	14,691	763	3,457	238
1945	52,058	8,082	4,885	1,025	2,651	168	8,824	410	3,741	254
1946	108,180	17,136	11,746	2,778	9,517	558	5,002	275	7,497	545
1947	75,187	15,561	17,457	4,960	14,017	691	8,997	409	2,880	248
1948	80,205	27,801	16,073	5,443	14,007	604	11,198	584	669	53
1949	85,919	36,717	13,588	6,352	17,760	840	10,157	608	1,375	179
1950	83,405	40,071	17,491	10,852	19,015	1,183	5,274	485	359	59
1951	80,732	96,493	11,055	16,066	16,973	1,221	2,070	217	616	113
1952	91,455	57,291	11,353	10,389	13,290	1,135	2,301	301	934	232
1953	100,909	67,759	12,604	11,363	11,058	1,437	14,527	1,463	1,020	303
1954	100,701	71,346	11,918	10,914	13,555	1,748	7,295	875	474	152
1955	96,554	59,296	13,261	11,267	14,939	2,038	7,109	1,328	2,313	532
1956	113,289	57,894	16,745	12,419	16,757	2,343	14,556	2,156	1,637	482
1957	108,582	71,251	18,746	16,259	9,099	1,221	12,761	1,741	1,615	588
1958	96,453	57,224	18,557	15,462	24,305	3,302	11,205	1,900	5,124	1,462
1959	111,131	46,313	21,763	12,224	23,226	4,342	21,923	3,177	4,371	1,178
1960	111,104	58,137	27,430	19,820	29,977	6,742	19,258	2,378	2,618	953
1961	131,903	59,290	26,128	15,552	27,365	6,141	25,059	3,901	4,176	1,501
1962	136,894	68,177	25,331	15,688	27,654	6,299	18,669	2,436	6,946	2,025
1963	131,433	66,401	25,222	15,706	38,069	9,382	16,376	2,401	4,543	1,404
1964	159,262	97,138	22,901	17,101	45,257	11,497	11,872	1,895	1,898	718
1965	151,812	83,030	22,586	15,264	42,682	11,730	11,111	1,981	1,259	516
1966	193,682	101,905	21,705	13,223	39,937	12,108	22,750	4,357	926	376
1967	214,064	114,052	21,578	12,943	37,284	11,987	21,278	3,723	1,245	470
1968	249,616	113,868	25,317	12,549	37,084	12,995	28,998	4,745	1,205	474

(a) From 1915, year ended 30 June. (b) For 1890 and earlier years includes degreased wool for which figures are not available separately. (c) See note (b). (d) Separate particulars not available. Total exports of fresh meats were 184,379 lb valued at $9,164. (e) Less than 500. (f) Six months ended 30 June.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (a)	Flour		Butter		Potatoes		Fresh fruit (b)	Cattle	Sheep
	Quantity	Value	Quantity	Value	Quantity	Value	Value	Value	Value
	short tons (c)	$'000	cwt	$'000	tons	$'000	$'000	$'000	$'000
1850	....	....	(d)	(e)	(d)	(e)	....	(e)	(e)
1860	12	(e)	....	....	70	1	....	....	4
1870	....	....	....	....	26	(e)	....	....	(e)
1880	(d)	2	....	....	....	....	....	....	(e)
1890	....	....	....	....	....	....	....	1	2
1900	52	1	76	1	111	1	1	(e)	2
1906	....	(e)	20	(e)	....	....	(e)	(e)	2
1907	4,067	69	4	(e)	....	....	2	1	(e)
1908	477	9	3	(e)	11	(e)	5	1	(e)
1909	1,029	20	206	3	63	1	4	(e)	1
1910	2,821	49	1,507	12	18	(e)	11	16	9
1911	7,145	107	157	1	....	....	32	67	17
1912	15,410	241	135	2	548	11	67	103	22
1913	29,696	477	165	2	3	(e)	65	146	31
1914 (f)	18,211	315	30	(e)	4	(e)	17	59	6
1915	2,890	52	15	(e)	69	1	93	75	11
1916	17,220	426	69	1	516	11	44	142	9
1917	37,747	843	232	4	6	(e)	164	45	4
1918	57,634	1,377	2,631	48	7	(e)	71	177	29
1919	105,183	2,583	1,457	29	57	1	114	18	44
1920	129,250	5,045	744	17	1,611	54	300	73	28
1921	53,302	2,144	398	10	339	7	243	44	23
1922	56,155	2,046	245	6	293	5	352	96	70
1923	59,703	1,338	13	(e)	1,541	32	476	118	45
1924	77,970	1,644	115	2	3,389	90	378	60	40
1925	74,909	1,923	....	(e)	436	5	493	5	8
1926	91,859	2,581	....	(e)	1,621	43	464	30	31
1927	94,020	2,314	11	(e)	1,516	44	669	32	50
1928	85,107	2,009	10	(e)	429	12	384	70	58
1929	79,659	1,780	713	14	1,306	32	1,067	38	52
1930	69,070	1,540	412	7	4,957	151	312	1	46
1931	85,664	1,266	393	5	4,820	47	604	3	25
1932	88,252	1,156	13,044	179	713	14	861	3	28
1933	86,155	1,105	20,519	280	479	5	665	1	35
1934	64,594	781	19,676	195	1,681	17	673	(e)	26
1935	85,965	1,127	20,504	148	2,337	49	826	1	44
1936	66,836	972	20,325	246	8,307	121	905	1	47
1937	86,146	1,662	14,535	183	6,995	119	670	1	56
1938	81,162	1,605	32,318	472	4,951	55	549	(e)	74
1939	89,029	1,165	36,917	462	14,725	282	1,175	1	73
1940	91,667	1,301	36,861	490	11,764	214	740	(e)	65
1941	118,595	2,185	34,412	460	18,209	373	282	2	112
1942	84,974	1,681	32,988	428	10,287	213	114	1	97
1943	77,616	1,581	3,334	47	6,309	139	139	1	(e)
1944	106,859	2,344	18,082	262	760	22	96	27	(e)
1945	101,896	2,505	18,969	369	17,656	581	132	2	1
1946	116,942	4,667	25,254	502	13,010	446	488	2	91
1947	129,699	7,628	18,113	383	12,735	484	1,445	27	362
1948	139,996	11,326	40,207	1,000	18,329	681	1,688	10	347
1949	131,203	10,516	40,843	1,047	13,506	431	1,452	11	374
1950	115,814	8,335	29,033	864	9,931	384	1,780	5	426
1951	159,740	11,774	9,795	312	11,004	506	2,295	9	616
1952	161,581	13,669	2,828	93	13,301	733	2,853	23	631
1953	176,241	15,090	3,059	126	12,657	750	4,556	23	501
1954	147,849	11,704	3,343	141	15,773	1,300	3,300	29	568
1955	120,342	7,219	3,312	142	8,878	512	3,845	68	612
1956	129,421	7,766	5,017	206	2,239	171	3,393	177	625
1957	127,491	7,474	3,489	156	7,606	736	4,598	243	923
1958	111,827	6,907	3,938	169	13,777	832	3,725	308	841
1959	104,559	6,337	3,508	166	8,442	368	3,609	396	764
1960	87,851	5,100	3,764	183	9,460	436	2,437	325	845
1961	135,407	7,840	5,971	247	7,697	437	4,636	318	881
1962	97,983	5,891	14,877	532	10,165	632	2,818	55	1,254
1963	74,574	4,645	4,857	228	17,747	810	4,982	160	1,495
1964	69,090	4,396	2,723	126	9,768	353	4,016	331	1,433
1965	92,402	5,926	3,272	159	12,731	841	5,165	427	1,376
1966	54,157	3,378	20,896	732	21,025	1,393	4,838	283	1,633
1967	38,365	2,507	3,778	*201	17,202	692	5,704	381	1,771
1968	46,207	2,944	4,433	232	12,934	622	4,068	1,229	2,191

(a) From 1915, year ended 30 June. (b) Includes tomatoes for 1932–33 and earlier years. (c) Short ton = 2,000 lb.
(d) Not available. (e) Less than $500. (f) Six months ended 30 June. * Revised.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (*a*)	Skins and hides	Timber (*b*)		Rock lobster tails (*c*)		Pearl-shell		Iron and steel (*d*)
	Value	Quantity	Value	Quantity	Value	Quantity	Value	Value
	$'000	'000 sup. ft	$'000	'000 lb	$'000	cwt	$'000	$'000
1850	1	126	2	....	....	....	....	....
1860	(*e*)	658	10	....	....	....	....	....
1870	(*e*)	2,566	35	....	....	1,480	19	....
1880	8	7,950	133	....	....	14,380	79	....
1890	49	14,066	164	....	....	24,745	173	....
1900	150	68,705	916	....	....	14,747	173	7
1906	371	105,761	1,416	....	....	23,515	285	16
1907	373	76,826	1,010	....	....	27,881	340	7
1908	276	118,435	1,627	....	....	30,693	381	6
1909	395	129,868	1,734	....	....	23,412	350	5
1910	482	144,858	1,945	....	....	29,281	492	5
1911	347	149,390	1,972	....	....	27,471	482	2
1912	365	135,565	1,807	....	....	31,915	843	3
1913	513	163,438	2,179	....	....	30,419	549	3
1914 (*f*)	209	75,357	1,004	....	....	10,143	172	8
1915	300	119,622	1,617	....	....	22,806	323	45
1916	504	65,188	884	....	....	25,045	317	14
1917	445	46,688	622	....	....	24,000	394	21
1918	407	41,230	548	....	....	17,267	288	53
1919	544	49,629	665	....	....	13,253	236	62
1920	1,246	60,784	931	....	....	33,505	671	16
1921	759	117,795	2,274	....	....	23,056	470	26
1922	730	99,707	2,082	....	....	30,440	508	16
1923	1,092	94,935	1,995	....	....	25,477	429	18
1924	1,040	133,648	2,735	....	....	28,479	487	6
1925	955	142,132	2,956	....	....	23,264	469	13
1926	883	144,017	3,046	....	....	25,762	465	9
1927	752	157,355	3,316	....	....	24,502	425	10
1928	1,106	124,617	2,531	....	....	19,066	332	7
1929	1,101	91,623	1,921	....	....	21,515	345	3
1930	738	78,957	1,615	....	....	19,378	331	3
1931	539	49,534	1,015	....	....	20,313	334	2
1932	395	36,752	722	....	....	12,237	194	1
1933	480	26,826	523	....	....	20,653	294	1
1934	771	48,730	972	....	....	16,854	196	7
1935	640	63,913	1,270	....	....	19,435	189	3
1936	1,061	67,178	1,356	....	....	19,363	214	3
1937	1,143	68,087	1,397	....	....	18,261	247	7
1938	985	90,549	1,860	....	....	24,781	336	12
1939	736	68,451	1,436	....	....	22,621	212	15
1940	745	60,595	1,251	....	....	16,859	153	31
1941	580	73,094	1,546	....	....	13,704	153	35
1942	772	62,697	1,369	....	....	11,616	142	19
1943	348	42,272	1,189	....	....	120	1	5
1944	680	43,744	1,216	....	....	37	1	23
1945	537	34,218	1,131	....	....	....	....	100
1946	1,274	40,476	1,429	....	....	260	8	9
1947	2,131	41,505	1,719	....	....	2,491	120	99
1948	2,048	43,349	2,230	....	....	6,733	340	89
1949	2,134	38,379	1,986	(*g*)	(*g*)	8,169	367	59
1950	2,329	34,295	1,949	1,143	463	6,997	248	95
1951	5,294	28,110	1,783	3,165	1,517	6,797	274	83
1952	3,194	28,659	2,075	2,891	1,861	8,205	406	58
1953	3,942	47,585	4,147	2,930	2,085	10,538	612	357
1954	3,295	46,318	4,480	3,222	2,342	12,271	708	279
1955	2,921	41,748	3,847	3,377	2,490	13,785	820	602
1956	3,274	54,591	5,598	3,529	3,022	15,954	999	530
1957	4,650	56,147	6,215	3,566	3,514	21,671	1,391	1,174
1958	3,898	66,872	7,496	4,708	3,965	22,580	1,381	2,470
1959	3,489	77,561	8,415	6,117	5,281	15,521	772	4,218
1960	4,767	73,601	7,760	6,604	6,499	12,535	707	11,198
1961	3,828	66,412	7,175	5,106	5,881	11,283	502	12,781
1962	4,580	68,059	7,528	7,952	9,778	8,924	320	13,826
1963	4,339	65,811	7,241	7,694	8,910	7,647	289	15,107
1964	4,966	63,331	6,813	7,532	9,211	3,304	112	15,029
1965	4,177	56,521	6,279	5,891	10,592	3,186	133	17,933
1966	5,447	29,185	3,687	7,040	13,821	3,045	123	14,458
1967	5,377	58,960	7,475	8,032	13,873	4,284	189	15,658
1968	4,699	35,850	4,947	8,640	17,989	4,178	147	11,442

(*a*) From 1915, year ended 30 June. (*b*) Excludes plywood and veneers and small quantities of timber for which the superficial footage is not recorded. For the years 1906 to 1921, figures are approximate. (*c*) Figures for the years 1949–50 to 1951–52 represent overseas exports only and exclude small consignments to other Australian States. Those for 1952–53 to 1959–60 include small consignments of cooked whole rock lobsters to other Australian States. (*d*) Principally pig-iron, cast iron and basic shapes and sections of iron and steel. (*e*) Less than $500. (*f*) Six months ended 30 June. (*g*) Precise information not available, but it is known that the value of exports was about $500,000.

EXPORTS OF CERTAIN COMMODITIES—*continued*

Year (*a*)	Gold mint bullion (*b*)		Lead and zinc ores (*c*)	Tin ore and concentrates	Asbestos (crude and fibre)		Manganese ore and concentrates		Iron ore and concentrates		Ilmenite concentrates (including leucoxene)	
	Quantity	Value (*d*)	Value	Value	Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
	'000 fine oz	$'000	$'000	$'000	short tons (*e*)	$'000	'000 tons	$'000	'000 tons	$'000	'000 tons	$'000
1850	....	....	(*f*)	....	....	....	....	....	....	....	....	....
1860	....	....	2	....	....	....	....	....	....	....	....	....
1870	....	....	29	....	....	....	....	....	....	....	....	....
1880	....	....	31	....	....	....	....	....	....	....	....	....
1890	23	173	4	11	....	....	....	....	....	....	....	....
1900	1,000	7,589	(*f*)	76	....	....	....	....	....	....	....	....
1906	692	5,861	....	277	....	....	....	....	....	....	....	....
1907	538	4,545	4	303	....	....	....	....	....	....	....	....
1908	485	4,105	10	167	....	....	....	....	....	....	....	....
1909	512	4,328	4	126	....	....	....	....	(*f*)	(*f*)	....	....
1910	334	2,835	4	93	....	....	....	....	....	....	....	....
1911	309	2,613	31	110	....	....	....	....	....	....	....	....
1912	269	2,285	45	159	....	....	(*f*)	(*f*)	....	....	....	....
1913	198	1,683	119	144	....	....	....	....	....	....	....	....
1914 (*g*)	60	513	57	39	....	....	....	....	....	....	....	....
1915	100	827	95	51	....	....	....	....	....	....	....	....
1916	183	1,547	22	92	....	....	....	(*f*)	....	....	....	....
1917	....	....	7	113	....	....	....	....	....	....	....	....
1918	....	....	9	110	1	(*f*)	....	....	....	....	....	....
1919	....	....	8	112	3	(*f*)	....	....	....	....	....	....
1920	41	452	102	129	....	....	....	....	....	....	....	....
1921	(*f*)	1	67	41	145	13	(*f*)	(*f*)	....	....	....	....
1922	....	....	....	10	98	8	(*f*)	(*f*)	....	....	....	....
1923	....	....	47	18	....	....	(*f*)	(*f*)	....	....	....	....
1924	91	767	108	38	....	....	(*f*)	(*f*)	(*f*)	(*f*)	....	....
1925	36	305	186	29	....	....	(*f*)	(*f*)	....	....	....	....
1926	50	386	186	23	....	....	....	....	....	....	....	....
1927	91	711	109	28	....	....	(*f*)	1	....	....	....	....
1928	14	121	8	24	....	....	(*f*)	1	....	....	....	....
1929	10	81	11	30	....	....	....	....	(*f*)	(*f*)	....	....
1930	(*f*)	1	19	29	....	....	(*f*)	(*f*)	....	....	....	....
1931	....	....	2	10	....	....	....	....	....	....	....	....
1932	515	7,336	1	6	....	....	(*f*)	(*f*)	....	....	....	....
1933	625	9,376	(*f*)	7	....	....	....	....	....	....	....	....
1934	653	10,624	(*f*)	11	....	....	....	....	....	....	....	....
1935	589	10,258	(*f*)	17	....	....	....	....	....	....	....	....
1936	771	13,385	....	18	....	....	....	....	....	....	....	....
1937	909	15,819	....	16	....	....	....	....	....	....	....	....
1938	1,075	18,598	1	20	310	37	....	....	....	....	....	....
1939	1,169	21,240	1	11	300	26	....	....	....	....	....	....
1940	1,168	24,056	2	14	207	17	....	....	....	....	....	....
1941	1,202	25,096	2	12	163	15	....	....	....	....	....	....
1942	975	20,590	2	6	82	7	....	....	....	....	....	....
1943	756	15,744	1	5	98	8	....	....	....	....	....	....
1944	349	7,250	1	6	101	8	....	....	....	....	....	....
1945	....	....	1	5	425	36	....	....	....	....	....	....
1946	....	....	(*f*)	8	1,192	104	....	....	....	....	....	....
1947	....	....	5	12	702	65	....	....	....	....	....	....
1948	356	7,656	146	17	1,324	148	....	....	....	....	....	....
1949	....	....	235	31	1,299	179	2	22	....	....	....	....
1950	(*f*)	2	272	49	985	204	10	126	....	....	....	....
1951	....	....	263	62	1,728	378	11	154	....	....	....	....
1952	395	13,143	1,369	107	2,888	709	8	115	52	102	....	....
1953	759	24,798	1,681	153	3,313	990	14	256	544	1,079	....	....
1954	418	13,230	270	97	3,527	986	27	829	583	1,157	....	....
1955	618	19,338	108	146	4,180	788	34	804	580	1,149	....	....
1956	410	12,842	888	322	8,305	1,440	55	1,271	472	936	....	....
1957	770	24,119	960	293	11,825	2,140	58	1,551	329	649	....	....
1958	208	6,511	410	166	12,944	2,920	75	2,501	439	870	88	1,011
1959	132	4,118	238	304	11,836	2,166	56	1,628	589	1,169	65	648
1960	600	18,738	229	415	16,983	3,111	79	2,224	796	1,601	89	713
1961	2,532	79,271	83	325	11,879	2,364	47	1,267	1,019	2,101	130	1,198
1962	453	12,195	45	563	14,165	2,753	108	2,945	1,052	2,209	156	1,441
1963	417	13,048	33	532	13,900	2,799	52	1,390	1,471	2,898	180	1,717
1964	385	12,045	18	1,080	8,894	1,767	27	695	1,359	2,743	259	2,571
1965	513	16,127	662	1,229	12,270	2,210	76	1,747	1,537	3,040	325	3,194
1966	833	26,147	124	1,521	8,889	1,702	104	2,404	2,615	6,967	423	4,181
1967	480	15,107	177	2,214	6,597	1,229	190	4,161	8,395	50,890	436	4,440
1968	373	11,816	58	2,330	(*h*)	(*f*)	161	3,408	14,333	104,506	455	4,645

(*a*) From 1915, year ended 30 June. (*b*) Gold sold abroad before consignment is not recorded as an export until actually shipped. (*c*) Includes silver-lead and silver-lead-zinc ores and concentrates. (*d*) Includes additional premiums on sales of industrial gold. (*e*) Short ton = 2,000 lb. (*f*) Less than 500. (*g*) Six months ended June. (*h*) 700 lb.

EXTERNAL TRADE
($'000)

Year (a)	Imports			Exports (b)			Excess of—		Ships' stores
	Overseas	Interstate	Total	Overseas	Interstate	Total	Imports	Exports	
1850	(c)	(c)	125	(c)	(c)	44	80	....	(c)
1860	318	20	338	160	16	175	163	....	3
1870	260	167	427	348	46	394	33	....	8
1880	349	358	707	736	252	988	....	280	11
1890	1,025	724	1,749	961	369	1,330	419	....	14
1900	6,574	5,350	11,924	11,246	2,250	13,496	....	1,572	208
1906	7,561	6,081	13,642	18,007	1,547	19,554	....	5,912	111
1907	7,175	5,871	13,046	17,157	2,499	19,656	....	6,610	154
1908	6,424	5,932	12,356	17,046	1,830	18,875	....	6,519	161
1909	6,645	6,169	12,814	13,361	4,121	17,482	....	4,668	239
1910	8,750	7,067	15,817	11,679	4,627	16,306	....	489	294
1911	8,971	8,321	17,292	18,342	2,586	20,928	....	3,637	285
1912	10,635	8,466	19,101	15,281	2,308	17,589	1,512	....	293
1913	10,815	8,970	19,785	10,204	7,726	17,931	1,854	....	326
1914 (d)	5,112	4,256	9,368	5,788	4,474	10,262	....	894	157
1915	7,972	8,630	16,603	6,242	4,177	10,419	6,184	....	286
1916	8,338	9,628	17,966	8,769	6,711	15,480	2,486	....	601
1917	8,773	9,997	18,770	9,291	19,488	28,779	....	10,009	587
1918	5,011	10,288	15,298	8,521	2,783	11,303	3,995	....	311
1919	6,281	9,767	16,048	18,886	2,323	21,209	....	5,161	637
1920	9,918	14,819	24,737	28,918	2,392	31,311	....	6,574	827
1921	14,439	15,239	29,678	20,790	2,724	23,514	6,165	....	1,004
1922	8,616	15,459	24,076	21,594	4,522	26,116	....	2,041	1,141
1923	13,001	14,555	27,555	19,359	2,252	21,611	5,944	....	599
1924	13,325	15,363	28,688	24,825	2,928	27,753	935	....	493
1925	16,053	16,095	32,148	25,719	2,623	28,342	3,806	....	987
1926	15,792	17,133	32,925	25,223	2,876	28,100	4,826	....	1,064
1927	18,894	17,858	36,752	26,135	2,810	28,946	7,806	....	1,358
1928	18,023	18,553	36,575	32,505	2,674	35,179	1,396	....	1,302
1929	18,906	21,201	40,108	30,603	2,411	33,014	7,094	....	1,358
1930	17,758	19,805	37,563	32,009	2,213	34,223	3,341	....	1,316
1931	9,165	13,639	22,804	33,306	1,550	34,856	....	12,052	1,095
1932	6,926	15,854	22,780	29,633	1,826	31,459	....	8,679	1,133
1933	9,542	16,740	26,282	28,037	1,916	29,953	....	3,671	1,122
1934	8,889	18,554	27,443	31,132	2,427	33,559	....	6,116	1,024
1935	10,203	20,290	30,493	30,002	2,650	32,652	....	2,158	1,106
1936	12,688	22,073	34,761	33,023	3,665	36,689	....	1,928	1,095
1937	14,144	24,742	38,886	34,592	6,361	40,953	....	2,067	1,029
1938	15,986	25,879	41,865	38,944	6,057	45,001	....	3,135	1,200
1939	12,275	25,329	37,604	34,149	10,815	44,964	....	7,360	1,049
1940	12,568	27,450	40,017	19,256	28,518	47,774	....	7,756	1,380
1941	9,710	27,519	37,229	16,900	30,808	47,708	....	10,479	1,971
1942	10,391	26,110	36,501	23,157	25,241	48,398	....	11,897	2,305
1943	7,383	24,803	32,186	10,625	20,117	30,741	1,445	....	1,983
1944	7,770	26,628	34,399	22,845	13,472	36,317	....	1,919	2,747
1945	9,215	26,863	36,079	24,765	11,533	36,298	....	219	2,508
1946	11,018	32,238	43,256	38,917	11,662	50,579	....	7,322	2,511
1947	18,929	42,253	61,182	46,015	11,459	57,474	3,708	....	1,966
1948	34,311	51,329	85,640	97,389	11,599	108,989	....	23,349	2,474
1949	44,075	61,182	105,258	96,982	9,495	106,477	....	1,220	4,710
1950	68,844	70,044	138,887	106,590	12,421	119,011	19,876	....	4,720
1951	80,517	95,828	176,345	197,686	18,780	216,466	....	40,122	7,249
1952	120,474	124,209	244,683	151,562	35,404	186,966	57,717	....	8,419
1953	59,748	137,213	196,961	166,286	49,659	215,945	....	18,984	10,321
1954	85,051	165,374	250,425	136,849	39,190	176,039	74,386	....	7,266
1955	101,295	182,110	283,405	137,013	47,310	184,323	99,082	....	7,865
1956	92,963	177,952	270,915	152,286	68,466	220,752	50,164	....	10,592
1957	80,423	188,680	269,103	216,599	81,545	298,144	....	29,041	12,902
1958	91,775	195,103	286,879	179,516	79,836	259,352	27,527	....	11,602
1959	89,972	202,430	292,402	174,585	68,919	243,504	48,898	....	9,482
1960	92,363	246,696	339,059	231,766	77,278	309,043	30,016	....	8,954
1961	110,531	245,474	356,005	309,332	89,922	399,254	....	43,249	10,285
1962	100,178	245,208	345,386	287,619	84,626	372,245	....	26,859	9,379
1963	112,640	313,712	426,351	246,823	91,636	338,459	87,892	....	7,904
1964	121,677	323,176	444,854	286,132	101,811	387,943	56,911	....	9,733
1965	153,540	343,899	497,439	243,078	119,954	363,033	134,407	....	9,009
1966	175,690	403,054	578,744	314,404	119,619	434,023	144,721	....	10,058
1967	159,390	474,852	634,242	421,325	116,030	537,355	96,887	....	10,936
1968	206,980	527,052	734,031	475,260	124,505	599,765	134,266	....	14,824

(a) From 1915, year ended 30 June. (b) Excludes ships' stores. (c) Not available. (d) Six months ended 30 June.

LAND TENURE; LIVESTOCK; WOOL PRODUCTION

Year	Land alienated and land in process of alienation (a)	Land held under lease or licence (a) (b)	Livestock (c)				Wool production (d)	
			Horses	Cattle	Sheep	Pigs	Quantity	Gross value (e)
	'000 acres	'000 acres	'000	'000	'000	'000	'000 lb	$'000
1829	525	....	(f)	(f)	1	(f)	(g)	
1830	633	....	(f)	1	8	(f)	(g)	
1840	1,598	....	1	2	31	2	(g)	
1850	1,330	(g)	3	13	128	3	(g)	
1860	1,516	5,563	10	32	260	11	657	(g)
1870	1,465	12,239	22	45	609	13	1,788	
1880	2,125	44,920	35	64	1,232	24	4,343	
1890	5,334	104,742	44	131	2,525	29	6,969	
1900	6,619	87,376	68	339	2,434	62	9,531	
1906	12,576	152,528	105	690	3,341	56	17,438	1,375
1907	13,070	160,180	113	717	3,685	53	22,014	1,750
1908	14,003	161,219	117	742	4,097	47	22,451	1,371
1909	16,252	166,858	125	793	4,732	47	30,048	2,219
1910	17,330	167,208	134	825	5,159	58	29,123	2,141
1911	19,046	169,938	140	844	5,412	56	29,644	2,184
1912	20,793	175,630	148	806	4,597	47	25,380	1,870
1913	21,363	188,547	157	834	4,421	48	25,026	1,902
1914	21,649	184,221	162	864	4,456	60	24,419	1,819
1915	22,087	189,742	163	821	4,804	58	29,713	2,607
1916	21,710	196,707	170	864	5,530	91	33,093	3,926
1917	21,561	192,437	178	927	6,384	112	40,335	4,835
1918	21,568	208,049	180	944	7,184	86	45,734	6,155
1919	21,843	245,405	175	881	6,698	58	41,594	5,369
1920	23,023	257,610	179	850	6,533	61	41,772	4,552
1921	24,232	258,504	180	893	6,506	63	43,082	4,482
1922	25,756	267,620	181	940	6,664	68	40,862	6,294
1923	27,065	262,147	182	954	6,596	61	45,285	8,665
1924	28,343	209,937	175	892	6,397	66	43,424	9,151
1925	28,902	232,992	171	836	6,862	74	48,288	6,800
1926	30,278	230,562	166	827	7,459	70	55,132	7,148
1927	31,740	234,160	165	847	8,447	60	62,702	10,170
1928	33,322	237,428	161	838	8,943	49	58,866	8,027
1929	35,399	243,724	160	837	9,557	65	67,151	5,952
1930	36,039	245,390	157	813	9,883	101	71,542	4,829
1931	36,209	216,627	156	827	10,098	121	71,614	5,007
1932	35,869	206,162	157	857	10,417	118	75,147	5,198
1933	35,547	198,325	160	886	10,322	91	78,424	9,404
1934	35,090	200,588	162	912	11,197	98	89,992	6,422
1935	34,118	203,602	160	883	11,083	98	85,707	8,886
1936	32,995	203,961	155	793	9,008	76	63,537	7,306
1937	33,003	205,059	151	740	8,732	65	64,739	5,832
1938	33,009	205,992	144	768	9,178	83	72,475	5,450
1939	32,768	205,705	139	799	9,574	150	75,400	7,581
1940	32,437	209,380	130	789	9,516	218	71,347	7,889
1941	32,110	209,958	124	840	9,773	163	77,627	8,328
1942	31,864	211,536	113	831	10,424	152	95,718	11,935
1943	31,658	212,039	107	871	11,013	164	102,759	12,741
1944	31,622	212,696	97	853	10,050	164	84,141	10,512
1945	31,719	212,331	88	834	9,766	138	82,067	10,424
1946	31,781	212,163	81	812	9,787	102	80,524	16,094
1947	32,083	213,885	75	816	10,444	93	89,528	29,277
1948	31,857	217,807	69	864	10,873	81	93,769	37,720
1949	32,280	223,691	59	865	10,923	79	92,750	47,237
1950	32,778	226,005	55	841	11,362	90	102,911	118,068
1951	33,981	(b)203,940	53	852	12,188	86	116,142	64,027
1952	34,766	205,607	50	846	12,475	76	120,726	75,121
1953	35,861	206,438	49	830	13,087	101	128,964	82,567
1954	37,237	206,566	47	861	13,411	107	124,173	67,985
1955	37,826	208,640	45	897	14,128	99	149,764	69,642
1956	38,230	216,318	45	957	14,887	140	148,374	90,283
1957	38,564	216,811	44	997	15,724	151	151,026	75,228
1958	39,259	221,763	41	1,000	16,215	115	157,358	59,407
1959	39,718	227,600	41	1,030	16,412	131	160,892	75,302
1960	40,103	227,650	40	1,100	17,151	176	182,217	73,863
1961	40,617	231,806	40	1,218	18,314	174	183,334	79,283
1962	41,468	240,037	39	1,298	18,727	131	177,176	80,071
1963	42,607	248,246	39	1,299	20,165	128	209,555	116,331
1964	43,643	246,467	37	1,258	22,392	137	200,995	93,275
1965	44,588	246,055	35	1,271	24,427	144	238,356	115,183
1966	45,416	246,038	(g)	1,357	27,370	161	263,852	121,509
1967	46,783	248,812	(g)	1,427	30,161	183	289,642	116,653
1968	48,042	249,133	(g)	1,546	32,901	220	362,509	158,510

(a) From 1906, at 30 June; for earlier years, at 31 December. (b) Comprises allocations by Lands Department and certain leases and licences issued by Mines and Forests Departments. Apparent decrease in 1951 due mainly to revisions in records of Lands Department. (c) At 31 December for 1941 and earlier years; from 1942, the figures shown relate to 31 March in the following year. (d) Comprises shorn, dead and fellmongered wool. Excludes wool exported on skins. For 1947 and earlier, year ended 31 December; figures shown for 1948 to 1964 are for the year ended 31 March in the following year. From 1965 figures relate to the year ended 30 June in the following year. (e) Figures for 1949 and 1951 to 1955 exclude distributions of profits under the 1939–1945 War-time Wool Disposals Plan aggregating $13,869,934. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (f) Less than 500. (g) Not available.

AGRICULTURE

Year (*a*)	Total area under all crops (*b*)	Area and production of principal grain crops							
		Wheat				Oats		Barley	
		Area	Production			Area	Production	Area	Production
			Yield per acre	Total	Gross value				
	'000 acres	'000 acres	bushels	'000 bushels	$'000	'000 acres	'000 bushels	'000 acres	'000 bushels
1840	3	2	20·0	33		(*c*)	(*c*)	(*c*)	(*c*)
1850	7	4	(*c*)	(*c*)		(*c*)	(*c*)	(*c*)	(*c*)
1860	25	14	15·3	208	(*c*)	1	12	2	43
1870	55	27	11·9	317		2	40	5	88
1880	64	28	9·3	257		1	21	6	89
1890	70	34	13·8	467		2	39	5	85
1900	201	74	10·4	775	310	5	86	3	29
1906	461	250	11·0	2,759	1,086	28	457	4	49
1907	494	280	10·5	2,926	1,046	47	722	6	76
1908	585	285	8·6	2,461	2,433	59	739	7	74
1909	722	449	12·5	5,602	2,661	73	1,248	8	102
1910	855	582	10·1	5,898	2,162	62	776	3	34
1911	1,073	612	7·1	4,359	1,734	77	961	4	37
1912	1,200	793	11·6	9,169	3,209	128	2,016	6	93
1913	1,538	1,097	12·2	13,331	4,666	134	1,656	12	168
1914	1,868	1,376	1·9	2,624	1,881	96	465	7	24
1915	2,189	1,734	10·5	18,236	6,535	104	1,538	10	131
1916	2,005	1,567	10·3	16,103	6,106	122	1,689	11	134
1917	1,680	1,250	7·4	9,304	4,419	96	909	5	36
1918	1,605	1,146	7·7	8,845	4,423	141	1,500	8	81
1919	1,628	1,042	10·8	11,223	10,662	192	2,487	9	116
1920	1,805	1,276	9·6	12,248	11,023	193	2,022	11	111
1921	1,902	1,336	10·4	13,905	7,532	163	2,020	8	86
1922	2,275	1,553	8·9	13,857	6,986	214	2,262	9	108
1923	2,323	1,657	11·4	18,920	8,987	242	2,847	9	98
1924	2,711	1,868	12·8	23,887	14,532	319	4,241	12	178
1925	2,932	2,112	9·7	20,471	12,837	278	2,939	13	158
1926	3,325	2,571	11·7	31,069	17,217	235	2,716	14	128
1927	3,720	2,999	12·1	36,370	19,842	235	2,923	12	127
1928	4,259	3,344	10·1	33,790	16,473	326	3,555	14	190
1929	4,566	3,568	11·0	39,081	17,721	385	4,058	24	262
1930	4,792	3,956	13·5	53,504	12,201	275	3,293	17	185
1931	3,963	3,159	13·1	41,521	14,430	268	3,550	15	165
1932	4,263	3,389	12·3	41,792	13,554	286	3,603	14	135
1933	4,217	3,183	11·7	37,305	12,004	343	3,950	25	325
1934	3,841	2,764	9·8	26,985	10,123	409	4,244	27	238
1935	3,726	2,541	9·2	23,315	9,747	448	4,558	32	418
1936	3,852	2,575	8·4	21,549	11,902	463	3,445	40	449
1937	4,168	3,026	12·0	36,225	14,830	386	4,364	45	584
1938	4,683	3,413	10·8	36,844	8,984	426	4,668	75	946
1939	4,287	2,970	13·8	40,861	15,526	453	5,315	83	971
1940	3,988	2,625	8·0	21,060	8,648	429	3,250	66	725
1941	3,817	2,653	14·1	37,500	15,615	407	5,325	68	959
1942	2,784	1,753	11·8	20,600	10,080	342	3,612	50	533
1943	2,744	1,567	10·6	16,550	9,531	358	3,964	61	724
1944	2,756	1,516	10·5	15,929	8,319	402	3,845	76	884
1945	2,875	1,836	11·4	20,929	15,871	396	4,081	66	666
1946	3,532	2,426	9·8	23,800	22,048	425	3,661	66	519
1947	3,936	2,760	12·5	34,500	50,265	495	5,411	63	745
1948	4,102	2,868	12·6	36,250	42,122	532	6,998	64	981
1949	4,293	2,894	13·3	38,500	51,339	585	7,268	68	968
1950	4,533	3,185	15·7	49,900	65,328	586	7,914	59	925
1951	4,508	3,095	12·9	40,000	58,984	657	7,689	57	695
1952	4,637	2,999	11·8	35,458	55,194	832	10,440	107	1,742
1953	4,477	2,885	13·8	39,700	55,423	733	9,591	209	2,733
1954	5,043	2,979	11·5	34,300	43,655	874	9,585	260	2,805
1955	5,234	2,890	18·4	53,250	68,840	1,091	16,516	337	4,653
1956	5,139	2,764	11·6	32,100	44,055	1,051	10,442	344	3,751
1957	5,511	2,957	11·2	33,100	45,912	1,153	13,793	307	3,556
1958	6,015	3,292	17·5	57,650	77,639	1,330	22,585	321	5,410
1959	6,382	3,719	15·8	58,670	82,361	1,240	19,599	421	7,080
1960	6,757	4,021	15·9	63,900	92,290	1,330	21,810	541	8,496
1961	6,976	4,380	15·0	65,700	100,023	1,231	20,186	491	7,282
1962	7,327	4,804	15·1	72,500	107,023	1,177	18,572	390	6,056
1963	6,706	4,640	11·3	52,340	74,389	1,125	17,850	299	4,077
1964	7,289	5,151	12·2	63,071	88,557	1,152	14,011	303	3,701
1965	8,449	6,150	16·6	102,156	153,050	1,240	23,279	413	6,481
1966	8,558	6,347	16·3	103,195	153,157	1,204	22,117	373	6,707
1967	*8,883	6,647	16·1	106,975	170,102	1,158	19,759	416	7,027
1968	9,490	7,295	15·4	112,450	154,443	1,092	22,942	553	9,187

(*a*) Figures shown for 1942 and earlier are for the year ended last day of February in the following year; those shown for 1943 and later are for the season ended 31 March in the following year. (*b*) Excludes meadow hay. (*c*) Not available. * Revised.

PRIMARY PRODUCTION—MISCELLANEOUS

Year	Hay (all kinds) (a)		Gold production (b)		Coal production		Average values f.o.b.	
	Area	Production	Quantity	Value (c)	Quantity	Value	Wool (greasy) per lb (d)	Wheat per bushel (e)
	'000 acres	'000 tons	'000 fine oz	$'000	'000 tons	$'000	cents	cents
1860	6	8	....	....	....	....		53·96
1870	17	21	....	....	....	....		....
1880	20	20	....	....	....	....	(f)	50·00
1890	23	25	20	171	....	....		....
1900	104	104	1,414	12,015	118	110		15·00
1906	150	158	1,795	15,245	150	116	7·88	36·87
1907	131	138	1,698	14,421	142	110	7·95	39·37
1908	202	170	1,648	14,000	175	151	6·10	42·50
1909	159	195	1,595	13,553	214	182	7·38	41·25
1910	175	179	1,471	12,494	262	227	7·35	40·42
1911	344	300	1,371	11,646	250	222	7·35	34·58
1912	232	256	1,283	10,897	295	272	7·35	39·79
1913	247	279	1,314	11,163	314	307	7·58	37·08
1914	332	157	1,233	10,475	319	297	(g) 7·45	36·87
1915	290	395	1,210	10,280	287	276	6·80	(h) 69·79
1916	241	237	1,061	9,017	302	296	8·72	48·54
1917	266	267	970	8,243	327	384	11·64	46·67
1918	250	250	877	7,446	337	409	10·04	50·21
1919	327	379	734	7,498	402	521	13·01	53·75
1920	267	264	618	6,951	462	701	12·82	71·67
1921	336	369	554	5,907	469	814	10·92	73·33
1922	432	457	538	5,052	438	763	10·41	55·00
1923	330	368	505	4,464	421	738	15·24	50·42
1924	398	449	485	4,512	422	727	18·95	47·50
1925	391	355	441	3,749	437	726	20·85	60·83
1926	358	424	437	3,715	475	789	13·96	62·71
1927	357	417	408	3,469	502	816	12·84	55·21
1928	415	422	393	3,342	528	840	16·11	54·58
1929	419	428	377	3,204	545	853	13·55	50·62
1930	398	492	418	3,729	501	770	8·78	45·42
1931	381	453	511	5,996	432	672	6·70	22·92
1932	417	485	606	8,807	416	541	7·03	31·25
1933	480	512	637	9,773	458	580	7·14	30·42
1934	413	463	651	11,118	500	557	13·04	29·37
1935	494	505	649	11,404	537	636	8·04	32·08
1936	478	413	846	14,747	565	663	11·33	39·79
1937	432	450	1,001	17,488	554	681	13·47	55·21
1938	408	438	1,168	20,726	605	750	11·00	41·04
1939	396	476	1,214	23,686	558	726	8·88	24·37
1940	418	375	1,191	25,393	539	729	11·65	30·45
1941	325	414	1,109	23,703	557	779	13·02	39·43
1942	253	278	848	17,731	581	923	12·99	41·14
1943	282	314	546	11,421	532	979	14·60	41·08
1944	329	339	466	9,800	558	1,166	15·79	48·21
1945	281	287	469	10,021	543	1,146	15·53	63·40
1946	277	280	617	13,280	642	1,460	15·84	86·57
1947	229	268	704	15,151	731	1,680	20·70	131·77
1948	227	277	665	14,314	733	1,760	34·66	175·07
1949	216	272	648	15,926	751	1,944	42·73	152·70
1950	177	227	610	18,933	814	2,575	48·04	155·20
1951	174	212	628	19,451	848	3,434	119·52	169·41
1952	227	290	730	23,696	830	4,915	62·64	170·48
1953	219	294	824	26,598	886	6,146	67·15	173·02
1954	289	305	851	26,627	1,018	7,178	70·85	165·75
1955	269	384	842	26,749	904	6,179	61·41	142·12
1956	242	288	812	26,405	830	5,448	51·10	126·73
1957	339	386	897	29,102	839	5,105	65·62	130·97
1958	333	455	867	28,357	871	4,561	59·33	153·36
1959	319	433	867	28,388	911	4,713	41·67	140·88
1960	284	381	856	28,140	922	4,878	52·33	134·67
1961	294	396	872	28,584	766	3,361	44·95	135·82
1962	340	453	859	28,115	919	3,962	49·80	141·25
1963	289	389	800	26,375	902	3,970	50·52	142·34
1964	305	390	713	23,383	987	4,679	60·99	141·55
1965	291	414	659	22,381	994	4,410	54·69	140·60
1966	295	417	629	23,316	1,061	4,562	52·61	139·13
1967	318	421	576	21,690	1,062	4,765	53·28	149·35
1968	341	501	512	19,407	1,087	4,817	45·62	139·64

(a) See footnote (a) on preceding page. (b) Comprises gold refined at the Mint and gold contained in gold-bearing materials exported. (c) Includes amounts, totalling $3,741,729 for the years 1952 to 1968, distributed by the Gold Producers' Association Ltd. from premiums on sales of Western Australian gold. Also includes net subsidy payments by the Commonwealth Government, under the *Gold Mining Industry Assistance Act* 1954–1966, totalling $22,650,282 in the years 1955 to 1968. (d) From 1915 figures relate to year ended 30 June. (e) Prior to 1940 averages generally are based on exports of the previous season's wheat; from 1940 they relate to exports during the year ended 30 June. (f) Not available. (g) For six months ended 30 June. (h) Exports negligible; average Metropolitan Market price shown.

VALUE OF PRODUCTION
($'000)

Year (a)	Gross value of primary production (b)							Net value of all recorded production (c) (d)		
	Agriculture	Dairying, poultry farming and bee keeping	Pastoral and trapping (c)	Mining and quarrying	Forestry	Fisheries	Total (b)	Primary	Manufacturing	Total
1914	6,194	1,122	4,115	11,154						
1915	13,059	1,173	6,060	11,057						
1916	11,779	1,383	7,340	11,937						
1917	8,513	1,332	8,959	9,365						
1918	9,516	1,396	9,088	8,607						
1919	18,133	1,687	9,544	7,184	(e)	(e)	(e)	(e)	(e)	(e)
1920	17,466	2,065	9,008	6,592						
1921	13,853	2,265	8,032	5,845						
1922	12,992	2,350	10,584	5,739						
1923	15,076	2,483	13,027	5,446		642				
1924	22,367	2,726	13,419	5,340		764				
1925	19,510	2,507	11,537	5,010	4,126	970	43,661	30,140	(f) 19,222	(g) 49,362
1926	24,187	2,503	11,262	4,933	3,367	580	46,833	32,512	13,814	46,326
1927	26,068	2,687	14,687	4,698	2,906	516	51,563	36,228	15,380	51,608
1928	23,884	2,936	13,501	4,589	2,463	561	47,933	31,961	15,937	47,898
1929	24,504	3,443	10,800	4,496	2,159	544	45,945	26,746	14,976	41,722
1930	17,756	3,170	8,845	4,695	1,809	485	36,761	17,266	10,562	27,828
1931	20,985	3,311	8,023	6,911	1,312	427	40,969	23,822	9,212	33,034
1932	20,495	3,338	8,057	9,691	1,183	430	43,193	24,714	10,124	34,838
1933	19,022	3,315	13,369	10,606	1,648	406	48,366	29,976	10,889	40,864
1934	16,336	3,927	9,456	11,939	2,399	373	44,430	28,175	12,570	40,745
1935	17,045	3,897	12,639	12,402	2,653	372	49,008	32,352	15,008	47,360
1936	18,871	4,170	11,437	15,827	3,032	465	53,801	36,447	15,893	52,341
1937	21,071	4,494	10,139	18,845	2,957	592	58,100	38,821	17,125	55,945
1938	17,077	4,716	9,457	22,205	2,899	561	56,916	35,976	17,551	53,527
1939	23,198	4,855	11,602	25,035	2,660	562	67,911	46,344	18,055	64,399
1940	14,760	5,230	11,701	26,706	3,160	539	62,096	41,065	18,034	59,098
1941	22,219	5,960	12,234	24,843	2,950	479	68,685	46,459	20,201	66,660
1942	18,106	7,664	16,345	18,975	3,277	255	64,622	45,248	22,906	68,154
1943	18,505	7,971	18,381	12,801	3,150	347	61,155	42,495	25,023	67,518
1944	20,856	8,473	15,600	11,529	3,152	330	59,940	42,276	25,920	68,196
1945	26,310	8,709	16,228	11,797	3,358	438	66,840	47,842	27,653	75,495
1946	32,635	8,933	22,451	15,405	3,305	635	83,363	60,351	31,497	91,848
1947	64,699	9,790	37,430	17,728	3,649	1,135	134,431	107,206	36,768	143,975
1948	58,785	11,964	46,771	17,543	4,024	1,379	140,467	108,182	42,948	151,130
1949	69,686	12,975	59,079	19,707	4,501	1,432	167,381	131,728	52,088	183,816
1950	87,752	14,155	132,420	24,175	6,741	1,649	266,891	222,046	68,441	290,487
1951	86,791	18,778	80,443	26,975	8,517	2,505	224,010	171,002	85,491	256,493
1952	87,127	21,289	91,099	35,969	7,155	3,286	245,924	181,123	98,383	279,505
1953	86,533	22,328	102,176	40,996	7,678	3,808	263,519	194,208	110,294	304,502
1954	77,164	21,762	87,770	42,651	8,116	4,383	241,846	170,351	121,912	292,262
1955	109,709	22,433	89,654	41,199	10,474	4,915	278,383	200,428	139,466	339,893
1956	80,170	23,240	113,162	42,735	10,305	5,563	275,176	196,749	146,884	343,633
1957	87,293	23,500	94,293	44,382	11,046	6,530	267,044	183,077	150,624	333,701
1958	126,672	22,838	81,764	43,595	10,903	7,818	293,590	199,991	157,524	357,515
1959	131,052	24,696	100,543	46,487	10,919	8,621	322,318	223,895	172,747	396,642
1960	140,003	25,917	101,630	47,103	11,082	8,569	334,304	232,468	193,262	425,730
1961	148,765	26,400	105,821	48,535	11,104	10,689	351,314	247,867	196,083	443,950
1962	157,948	27,387	107,656	49,415	10,877	11,219	364,503	255,821	216,422	472,243
1963	123,342	28,723	149,333	47,468	11,462	10,187	370,515	266,670	230,511	497,181
1964	139,426	30,884	126,612	49,306	12,093	15,218	373,539	266,726	260,637	527,363
1965	215,949	32,899	158,085	53,842	12,731	15,733	489,239	363,490	288,803	652,293
1966	218,206	33,022	160,843	89,512	13,300	16,525	531,408	386,372	335,788	722,160
1967	234,020	35,485	159,990	157,545	14,076	21,954	623,069	440,663	388,257	828,920

(a) Figures generally are for the season or financial period ending in the following year. (b) Represents the estimated value of recorded production based on wholesale prices realised at the principal market. (c) In addition, the following amounts were paid as interim distribution of profits under the 1939–1945 War-time Wool Disposals Plan: in 1949, $3,629,478; in 1951, $3,629,478; in 1952, $2,325,324; in 1953, $368,104; in 1954, $2,120,460; and in 1955, $1,797,090. Separate State figures are not available for distributions made from 1956 to 1958 when payments were virtually complete. (d) For primary production, net value of production is derived by deducting from the gross value all marketing costs and the cost of certain goods (seed, fertiliser, pickling, sprays, dips, fodder, fuel and oil, etc.) used in the process of production. For manufacturing, net value of production is the value added in the course of manufacture. It is obtained by deducting from the selling value ' at the factory ' the cost of materials used, fuel, power and light, lubricating oil and water, repairs to plant and buildings, tools replaced, and containers and materials used for packing. (e) Not available. (f) Eighteen months ended 30 June 1926. (g) See footnote (f).

FACTORIES (*a*)

Year (*b*)	Factories	Persons employed (*c*)	Salaries and wages (*d*)	Output (*e*)	Net production (*f*)	Production of selected commodities							
						Bricks (*g*)	Superphosphate (*h*)	Timber from local logs (*i*)	Bacon and ham	Butter (*j*)	Flour (plain)	Electricity distributed	Gas (town) produced
	No.	No.	$'000	$'000	$'000	'000	tons	'000 sup. ft	tons	tons	short tons (*k*)	million kWh	million cu ft
1897	487	9,689	(*l*)			36,564		85,053		121	7,314		(*l*)
1898	595	9,895	(*l*)			26,811		103,043		118	8,460		(*l*)
1899	603	10,206	2,496	(*l*)	(*l*)	18,565		118,052		132	10,042		53
1900	632	11,166	2,589			25,234		112,693		130	12,539		65
1906	802	13,739	3,244			37,893		136,295		170	26,977	(*l*)	80
1907	791	13,545	2,959			28,666		110,394		195	28,353		81
1908	774	13,276	3,116	8,958	5,213	23,842		168,414		163	31,424		82
1909	773	13,606	3,180	8,810	4,964	17,833		171,825		185	24,878		82
1910	822	14,894	3,532	10,158	5,472	23,162		174,528	(*l*)	286	36,818		93
1911	880	16,754	4,171	11,863	6,567	28,687		198,977		222	40,642	23	102
1912	891	17,425	4,579	13,652	7,165	34,432		217,696		200	49,319	25	111
1913	954	18,372	4,675	14,597	7,524	35,085	(*l*)	218,908		231	61,997	26	125
1914	989	18,799	4,949	14,445	7,667	34,854		227,297		201	61,922	28	135
1915	983	15,882	3,871	14,125	6,468	21,667		123,494		320	32,396	28	140
1916	953	13,844	3,600	14,693	6,294	18,585		100,356		482	70,912	27	157
1917	944	13,350	3,486	15,324	6,199	17,488		85,218		608	102,300	30	161
1918	862	13,849	3,726	16,799	6,318	15,672		94,990	1,028	397	119,876	30	169
1919	922	16,358	4,636	20,573	7,645	21,092		131,477	1,000	445	141,516	28	180
1920	998	16,942	6,073	26,283	9,708	31,838		137,934	837	544	120,125	33	194
1921	1,099	18,151	7,136	25,689	10,479	23,548		183,663	772	684	82,148	36	202
1922	1,323	18,743	7,426	25,741	11,580	28,509		179,059	801	678	94,316	41	182
1923	1,307	19,805	7,731	27,409	12,257	34,864		192,547	969	766	107,990	48	204
1924	1,293	21,671	8,673	31,453	13,917	34,930		207,137	1,164	741	122,192	55	217
1926 (*m*)	1,170	20,667	13,175	42,890	19,222	53,336		328,935	1,875	836	190,369	100	374
1927	1,216	19,403	8,303	31,343	13,814	45,204	182,621	229,195	1,123	1,100	133,919	78	294
1928	1,398	20,435	9,003	33,996	15,380	52,992	199,864	227,631	1,157	1,111	127,246	84	330
1929	1,469	20,913	9,351	34,909	15,937	60,568	254,977	174,324	1,089	1,617	119,550	92	362
1930	1,466	19,643	8,310	33,783	14,976	47,720	276,336	159,643	1,161	2,109	120,595	102	408
1931	1,455	14,619	5,774	24,707	10,562	13,630	191,137	112,484	1,300	3,171	132,090	98	424
1932	1,490	13,392	4,671	22,375	9,212	15,101	144,203	57,690	1,297	3,727	131,165	120	393
1933	1,499	14,810	5,083	24,655	10,124	25,673	231,245	59,254	1,542	4,224	127,574	138	389
1934	1,606	16,154	5,505	25,755	10,889	31,717	167,389	96,428	1,901	4,386	122,000	152	408
1935	1,658	17,769	6,222	29,283	12,570	37,552	190,627	130,497	2,035	4,992	124,130	164	446
1936	1,946	20,972	7,408	35,057	15,008	50,498	209,979	154,989	2,373	4,896	118,340	195	478
1937	2,032	22,712	8,315	36,626	15,893	53,270	264,457	176,321	1,941	4,751	122,723	224	507
1938	2,066	23,133	8,803	39,288	17,125	57,598	279,685	176,718	1,945	6,117	125,472	250	547
1939	2,129	23,211	9,147	39,097	17,551	53,062	298,180	161,315	1,881	6,542	137,553	278	561
1940	2,129	22,967	9,150	40,615	18,055	43,786	238,683	152,453	2,073	6,251	140,849	306	581
1941	2,056	22,734	9,441	43,650	18,034	45,505	206,161	146,847	2,288	6,352	149,925	320	629
1942	1,938	23,980	10,999	47,904	20,201	34,247	156,791	146,013	2,729	6,991	135,338	314	724
1943	1,799	25,813	12,956	53,475	22,906	8,926	121,144	138,878	4,106	6,446	126,274	283	860
1944	1,807	28,101	14,835	58,417	25,023	6,296	117,775	121,600	4,322	6,155	159,799	279	928
1945	1,931	29,146	15,228	63,481	25,920	10,003	198,092	116,330	4,971	5,676	161,690	292	1,003
1946	2,280	30,256	15,768	68,046	27,653	24,150	278,892	117,995	4,573	5,604	166,791	302	1,092
1947	2,615	33,806	18,210	76,540	31,497	37,758	266,332	139,842	4,603	5,956	176,726	339	1,127
1948	2,788	35,967	21,471	91,252	36,768	44,986	308,274	148,695	3,955	6,974	195,497	358	1,207
1949	2,925	38,354	25,856	106,835	42,948	50,378	381,013	142,285	3,553	6,966	181,466	354	1,250
1950	3,023	40,733	30,586	127,956	52,088	58,943	387,115	153,813	3,542	6,769	159,495	368	1,189
1951	3,111	43,761	39,316	168,862	68,441	67,312	416,997	176,207	3,558	6,797	217,345	402	1,392
1952	3,267	45,097	50,769	213,143	85,491	76,884	421,511	199,447	3,680	6,705	221,846	428	1,430
1953	3,424	45,188	56,687	238,620	98,383	86,043	417,727	223,325	3,693	6,480	224,330	469	1,443
1954	3,523	47,459	63,181	269,174	110,294	101,240	428,314	241,011	3,448	6,142	187,958	520	1,443
1955	3,727	49,314	69,476	299,169	121,912	115,412	472,787	251,493	3,316	7,145	165,767	583	1,448
1956	3,871	50,108	74,413	350,293	139,466	102,359	463,413	245,138	3,231	7,404	179,362	627	1,471
1957	3,935	48,748	73,833	375,272	146,884	101,209	482,049	228,427	3,054	7,462	169,535	652	1,451
1958	3,941	48,462	75,870	392,525	150,624	111,082	578,781	233,173	2,952	6,807	148,148	689	1,420
1959	4,125	48,417	77,464	392,405	157,524	101,521	529,799	237,779	2,955	6,166	139,702	732	1,418
1960	4,279	49,651	83,285	431,165	172,747	110,359	629,040	225,461	3,177	7,376	150,774	785	1,433
1961	4,334	50,666	90,255	481,140	193,262	119,998	660,501	210,316	3,163	7,661	168,237	870	1,450
1962	4,418	51,033	92,840	486,988	196,083	119,868	672,256	213,948	3,500	7,483	141,103	930	1,403
1963	4,492	53,435	99,880	517,899	216,422	131,176	751,574	205,835	3,837	6,963	135,911	1,020	1,401
1964	4,609	55,705	108,515	555,058	230,511	155,792	863,628	218,911	3,780	6,915	143,296	1,112	1,435
1965	4,734	58,097	119,978	616,422	260,637	146,057	867,205	233,254	3,983	7,762	134,378	1,241	1,458
1966	4,906	60,282	134,171	678,751	288,803	140,611	1,070,455	233,747	4,288	8,095	113,665	1,372	1,483
1967	5,167	63,757	153,597	765,224	335,788	163,166	1,201,433	225,735	4,580	6,426	101,109	1,596	1,560
1968	5,404	67,335	175,100	887,372	388,257	207,575	1,411,674	236,174	5,091	5,914	110,692	1,846	1,778

(*a*) For statistical purposes a factory is defined as any establishment engaged in the processes of manufacturing, assembling, treating or repairing and in which four or more persons are employed during any period of the year or power other than manual is used. (*b*) For 1924 and earlier, calendar year; from 1927, year ended 30 June. See also note (*m*). (*c*) Average over the whole year and includes working proprietors and, up to and including 1925–26, fallers and haulers employed by sawmills. (*d*) Figures for 1929–30 and later years exclude amounts drawn by working proprietors. (*e*) Selling value ' at the factory '. (*f*) Value added in course of manufacture, representing sum available for payment of wages, rent, depreciation, other sundry expenses and for interest and profit. (*g*) For years prior to 1964–65, figures include all types of standard size bricks. Prior to 1925–26, they also include firebricks and blocks. From 1964–65 figures represent clay bricks only (all sizes). (*h*) Prior to 1948–49, figures exclude quantities produced and used in own works. From 1948–49 figures include such quantities. (*i*) Includes plywood veneers in terms of superficial feet and hewn timber produced by agencies other than ' Factories '. (*j*) For 1917 and earlier years, includes butter made on farms. (*k*) Short ton = 2,000 lb. (*l*) Not available. (*m*) Eighteen months ended 30 June.

CONSUMER PRICE INDEX (*a*)

(Base of *each* index: Year 1966–67 = 100)

Year (*b*)	Group index numbers—Perth (Metropolitan Area)					Combined index (all groups)—Capital Cities						
	Food	Clothing and drapery	Housing	Household supplies and equipment	Miscellaneous	Perth	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Six capital cities (*c*)
1949	38·4	50·6	36·1	60·4	45·4	44·0	44·4	43·3	43·1	45·0	43·0	43·9
1950	42·5	58·3	38·2	64·6	46·6	48·0	48·1	47·1	46·6	48·4	45·8	47·6
1951	48·8	66·7	42·9	71·0	50·4	53·9	54·6	53·1	52·2	54·6	51·9	53·8
1952	60·8	80·8	50·2	84·2	60·8	65·6	67·4	64·7	63·8	66·8	64·0	65·9
1953	69·7	84·8	57·6	90·9	67·1	72·5	73·4	71·1	69·5	73·1	70·9	72·1
1954	74·0	84·8	62·0	92·7	66·8	74·6	74·5	72·5	70·9	74·7	74·4	73·5
1955	76·1	84·9	68·6	92·8	66·8	76·3	75·0	72·5	71·4	75·6	74·3	74·0
1956	77·4	86·0	71·3	92·7	70·8	78·3	77·5	76·8	73·8	78·1	78·1	77·0
1957	80·9	87·4	71·1	95·0	78·5	81·8	82·8	81·0	77·8	81·2	82·8	81·5
1958	79·7	89·6	72·5	96·0	79·4	82·4	84·0	81·3	79·4	81·8	82·9	82·3
1959	80·3	90·8	75·0	96·3	79·6	83·2	84·6	82·9	82·1	83·6	84·1	83·6
1960	82·5	91·7	76·9	97·3	81·1	84·8	86·5	85·3	84·2	86·2	85·6	85·7
1961	86·7	93·9	81·6	97·5	84·0	87·9	89·6	89·5	87·1	89·8	90·3	89·2
1962	86·1	94·7	84·3	97·6	84·0	88·2	89·9	89·8	88·4	89·5	90·7	89·6
1963	86·4	95·0	86·9	97·3	84·2	88·7	90·4	89·7	88·7	89·1	90·7	89·8
1964	87·4	95·7	89·8	95·7	86·2	89·8	91·4	90·4	89·6	90·2	91·7	90·6
1965	91·0	96·8	92·1	96·7	90·0	92·6	94·5	94·0	93·0	93·9	94·6	94·0
1966	95·2	97·9	95·4	98·3	95·3	96·1	97·7	97·5	97·5	97·0	98·0	97·4
1967	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0	100·0
1968	102·9	102·1	105·8	100·7	103·2	102·9	103·2	103·7	103·3	102·9	104·6	103·3

(*a*) The index numbers shown are so designed as to measure periodically the movement in retail prices of the specified groups of items in each city individually. They do not provide a measure of differences in absolute price level as between cities, nor of comparative costs of the groups of items. The reference base year of the index which up to now has been 1952–53 = 100, has been changed to a more recent period. As from this issue index numbers will be shown with the reference base year 1966–67 = 100. Index numbers on the new base are, of course, convertible to index numbers on the old base by the application of an arithmetical factor based on the relationship of the relevant series in 1952–53 and 1966–67. Apart from slight rounding differences, index numbers for past periods show exactly the same percentage movement on either reference base. (*b*) Year ended 30 June. (*c*) Weighted average.

CIVILIAN EMPLOYMENT

Year (*a*)	Wage and salary earners in civilian employment (*b*) (excluding employees in rural industry and private domestic service, and defence forces)		
	Males	Females	Persons
	'000	'000	'000
1946			
1947			
1948			
1949			
1950	(*f*)	(*f*)	(*f*)
1951			
1952			
1953			
1954	141·2	43·2	184·4
1955	144·5	45·1	189·6
1956	144·7	46·3	191·0
1957	143·3	46·1	189·4
1958	143·1	47·3	190·4
1959	144·9	48·4	193·3
1960	147·5	50·4	197·9
1961	148·5	51·2	199·7
1962	154·7	53·4	208·1
1963	159·4	55·5	214·9
1964	164·3	58·5	222·9
1965	171·5	62·7	234·2
1966	180·7	68·0	248·7
1967	183·9	72·4	256·3
1968	198·1	78·7	276·8

NEW BUILDINGS COMPLETED

Year (*a*)	New buildings completed				
	Houses		Flats (*c*)		All buildings
	Number	Value (*d*)	Number	Value (*d*)	Value (*d*) (*e*)
		$'000		$'000	$'000
1946	860	1,452	2	4	1,948
1947	1,792	3,516	....	....	4,232
1948	2,771	5,784	....	....	6,656
1949	3,244	7,592	....	....	9,414
1950	3,509	8,974	101	194	10,704
1951	5,160	15,032	305	606	17,896
1952	6,577	24,466	215	300	28,852
1953	7,965	37,988	100	334	45,836
1954	7,627	39,768	212	834	51,570
1955	8,792	48,422	316	1,176	68,192
1956	7,760	45,084	584	2,564	67,356
1957	5,030	29,054	365	1,502	46,848
1958	6,196	36,526	171	712	54,524
1959	5,846	34,410	212	840	60,524
1960	5,997	35,454	263	986	60,240
1961	5,973	38,102	440	1,580	72,050
1962	6,082	39,470	265	1,342	68,072
1963	6,593	45,780	642	2,984	86,428
1964	7,276	51,774	1,295	5,596	92,868
1965	7,445	57,238	1,841	9,046	107,100
1966	7,265	58,089	1,624	9,096	130,178
1967	8,272	78,078	1,742	9,322	162,135
1968	9,858	97,370	2,392	12,577	195,403

(*a*) Employment estimates relate to the month of June; statistics of new buildings completed are for the year ended 30 June. (*b*) Estimated; figures subject to revision. (*c*) Individual living units. (*d*) Excludes the value of land. (*e*) Includes value of houses and flats shown in preceding columns. (*f*) Not available on basis comparable with that for 1954 and later.

STATE AND COMMONWEALTH BASIC WAGE RATES (*a*)

At 31 December—	State basic wage		Commonwealth basic wage—Male rates (*b*)						
	Perth (*c*)		Perth	Sydney	Melbourne	Brisbane	Adelaide	Hobart	Weighted average six capital cities
	Male	Female							
	$	$	$	$	$	$	$	$	$
1923	(*d*)	(*d*)	7.80	8.90	9.15	7.60	8.55	8.90	8.75
1924	(*d*)	(*d*)	7.90	8.45	8.45	7.50	8.40	8.80	8.30
1925	(*d*)	(*d*)	8.10	8.80	8.75	7.70	8.60	8.55	8.60
1926	8.50	4.59	8.15	9.15	8.90	8.25	8.55	8.85	8.85
1927	8.50	4.59	7.95	9.05	9.00	7.95	8.80	8.50	8.80
1928	8.50	4.59	8.50	9.05	8.60	7.90	8.50	8.25	8.70
1929	8.70	4.70	8.55	9.50	9.00	8.05	8.85	8.60	9.05
1930	8.60	4.64	7.90	8.80	8.30	7.05	7.80	8.20	8.30
1931	7.35	3.97	6.21	7.07	6.34	5.85	5.81	6.43	6.52
1932	7.05	3.81	5.94	6.75	6.17	5.67	5.72	6.43	6.30
1933	6.92	3.74	6.02	6.69	6.28	5.93	5.96	6.39	6.33
1934	7.10	3.83	6.80	6.80	6.40	6.20	6.30	6.60	6.60
1935	7.05	3.81	6.80	7.00	6.60	6.40	6.70	6.90	6.80
1936	7.38	3.98	7.10	7.00	6.90	6.60	6.90	6.90	6.80
1937	7.49	4.04	7.50	7.80	7.70	7.40	7.40	7.50	7.60
1938	8.11	4.38	7.60	8.10	7.90	7.50	7.60	7.60	7.80
1939	8.22	4.43	7.70	8.20	8.00	7.60	7.70	7.70	7.90
1940	8.53	4.61	8.00	8.50	8.40	7.90	8.00	8.10	8.30
1941	9.04	4.88	8.50	8.90	8.80	8.40	8.40	8.50	8.70
1942	9.78	5.28	9.10	9.70	9.70	9.10	9.30	9.20	9.50
1943	10.11	5.46	9.40	9.90	9.80	9.30	9.40	9.50	9.70
1944	9.99	5.39	9.40	9.90	9.80	9.30	9.30	9.40	9.60
1945	10.01	5.41	9.40	9.90	9.80	9.30	9.30	9.40	9.60
1946	10.21	5.51	10.20	10.80	10.60	10.10	10.20	10.30	10.50
1947	11.08	5.98	10.60	11.20	10.90	10.50	10.60	10.70	10.90
1948	12.16	6.57	11.60	12.20	12.00	11.50	11.60	11.80	11.90
1949	13.59	7.34	12.90	13.20	13.00	12.50	12.60	12.80	12.90
1950	16.65	9.41	16.00	16.50	16.20	15.40	15.80	16.00	16.20
1951	20.57	13.37	19.70	20.70	19.90	18.50	19.50	19.90	20.00
1952	23.85	15.50	22.80	23.70	22.80	21.60	22.90	23.00	23.10
1953	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1954	24.65	16.02	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1955	25.24	16.41	23.60	24.30	23.50	21.80	23.10	24.20	23.60
1956	26.52	17.23	24.60	25.30	24.50	22.80	24.10	25.20	24.60
1957	27.28	17.72	25.60	26.30	25.50	23.80	25.10	26.20	25.60
1958	27.34	17.78	26.10	26.80	26.00	24.30	25.60	26.70	26.10
1959	28.15	18.30	27.60	28.30	27.50	25.80	27.10	28.20	27.60
1960	29.46	22.09	27.60	28.30	27.50	25.80	27.10	28.20	27.60
1961	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1962	29.88	22.41	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1963	30.15	22.61	28.80	29.50	28.70	27.00	28.30	29.40	28.80
1964	31.12	23.34	30.80	31.50	30.70	29.00	30.30	31.40	30.80
1965	31.96	23.97	30.80	31.50	30.70	29.00	30.30	31.40	30.80
1966 (*a*)	33.50	25.13	32.80	33.50	32.70	31.00	32.30	33.40	32.80
1968	(*e*) 35.45	(*e*) 27.08	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)	(*a*)

(*a*) See *Special Note* below. (*b*) In the period from Deeember 1950 to June 1967 the female basic wage was fixed at 75 per cent of the male rate; previously it had ranged from 54 per cent up to 75 per cent of the male rate. (*c*) The rates shown for 1964 and later apply uniformly throughout the State. (*d*) The first State basic wage operated from 1 July 1926. (*e*) Rates as from 22 November 1968 as prescribed under the provisions of the *Industrial Arbitration Act Amendment Act, 1968*.

Special Note. The 1966 wage rates shown in the ' State ' section of this table are those which applied until a decision of The Western Australian Industrial Commission dated 27 June 1967. The terms of this decision were that the minimum weekly wage payable to adult male workers under certain awards be increased from $36.55 to $37.55; ' that the wage rates for adult workers not in receipt of the "minimum wage" be increased by 60 cents per week; and that other wage rates be adjusted as if the basic wage for males and the basic wage for females had been increased by that amount '. These increases were deelared to operate from the beginning of the first pay-period commencing on or after 1 July 1967. A further increase of $1.35 a week for adult males and adult females was granted by the Industrial Commission in October 1968 to operate from the beginning of the first pay-period commeneing on or after 25 Oetober 1968. The latest wage rates shown in the ' Commonwealth ' section of the table applied until a decision of the Commonwealth Conciliation and Arbitration Commission in June 1967 to eliminate basic wages and margins from its awards and to introduce total wages to operate from the beginning of the first pay-period commencing on or after 1 July 1967. Total wages for adult males and adult females were increased by $1 a week from the same date. In October 1968 a further increase of $1.35 a week for adult males and adult females was granted by the Commission to operate from the beginning of the first pay-period commencing on or after 25 October 1968.

CHAPTER III—CONSTITUTION AND GOVERNMENT

pages 118-19

Overseas Representation in Western Australia

With the appointment of a consul to Yugoslavia in January 1970, the number of countries represented in Western Australia increased to twenty-one. The new consul is Mr P. Mihailovski, 32 King's Park Road, West Perth 6005.

Mr A. H. Birch, C.M.G., O.B.E. succeeded Mr B. A. F. Pennock as Deputy High Commissioner for the United Kingdom in April 1970.

page 120

Local Government Districts

In the period 31 December 1967 to 30 April 1970, the following changes in the names or designations of local government areas occurred.

The designation of the Town of Melville was changed to the City of Melville on 3 May 1968.

The name of the Shire of Upper Blackwood was changed to the Shire of Boyup Brook with effect from 30 May 1969.

The name of the Shire of Kalgoorlie was altered to the Shire of Boulder, with effect from 12 December 1969. (The district of the Town of Boulder had been previously abolished, with effect from 15 August 1969, and the outlying land which formerly comprised the Town of Boulder was annexed to the Shire of Kalgoorlie, with effect from 18 August 1969.)

The Shire of Bridgetown was united with the Shire of Greenbushes to form one municipality named the Shire of Bridgetown-Greenbushes, with effect from 26 March 1970.

The Shire of Donnybrook was united with the Shire of Balingup to form one municipality named the Shire of Donnybrook, with effect from 26 March 1970.

The Town of Midland was united with the Shire of Swan-Guildford to form one municipality named the Shire of Swan, with effect from 1 April 1970.

As a result of these changes there were, at 30 April 1970, 6 Cities, 10 Towns and 124 Shires in Western Australia.

CHAPTER V—SOCIAL CONDITIONS

PART 6—LAW, ORDER AND PUBLIC SAFETY

page 248

District Court

The *District Court of Western Australia Act, 1969* came into operation by proclamation with effect from 1 April 1970 and sittings of The District Court of Western Australia commenced in the same month.

CHAPTER VI—FINANCE

PART 2—PRIVATE FINANCE

page 286

Trading Banks

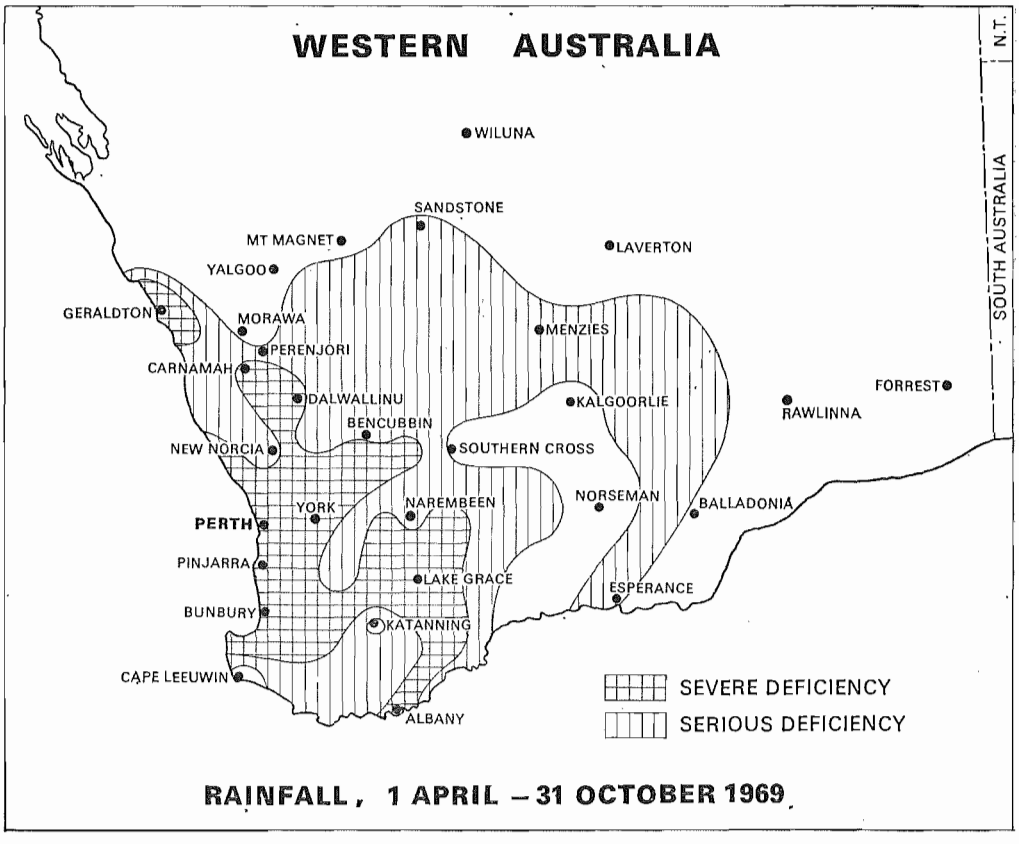
The Banque Nationale de Paris commenced operations in Western Australia on 25 November 1969, thus increasing the number of private trading banks to eight and the total number of trading banks in this State to ten.

RAINFALL IN AGRICULTURAL AREAS—1969

In 1969 rainfall in the agricultural areas was below normal throughout the growing season though the deficiencies were not so marked in the early months and could have been offset by good rains in July and August. July rains, however, were not much more than one-third of the normal amount and in September the deficiency was still greater in most places. October rains were mainly negligible, the average in the wheat-growing areas being about fourteen points.

The following map illustrates the main area of serious and severe rainfall deficiency in the period April to October 1969. Severe rainfall deficiency exists when the rainfall is less than that of the driest one year in twenty. Serious rainfall deficiency exists when the rainfall, though greater than the driest one year in twenty, is less than the driest one year in ten. At some places in the marginal wheat belt areas, rainfall for the period April to October inclusive was a little over four inches. In a number of places this period is the driest on record.

Apart from its effect on the grain harvest, the rainfall deficiency resulted in pastures at the end of October being generally fair to poor, and deteriorating, and dams being short of water. In some of the heavier-rainfall areas, where a deficit from the normal fall is not serious, there were some good pastures.



COMMONWEALTH ELECTORAL DIVISIONS
ORIGIN OF WESTERN AUSTRALIAN DIVISIONAL NAMES

The Report of the House of Representatives Select Committee on the Naming of Electoral Divisions, which was published on 15 April 1969, included a schedule giving the origin of the names of the Electoral Divisions in each State. The names of Divisions in Western Australia at 31 December 1969 and the origin of the names as given in the Report are shown below. A brief statement relating to each name has been added by this Office.

Electoral Division	Origin of name	Remarks
Canning	A. W. Canning	Canning was a prominent surveyor at the turn of the century who is noted particularly for his efforts in surveying the route for the No. 1 Rabbit Proof Fence, 1,139 miles in length, and for a stock route for beef cattle from Halls Creek in the Kimberley to Wiluna. This route became known as the ' Canning Stock Route '.
Curtin	Rt Hon. J. A. Curtin	Curtin was the first (and only) Western Australian representative in the Federal Parliament to become Prime Minister of Australia, leading a Labor Government from 7 October 1941 until his death on 6 July 1945. He represented Fremantle from 1928 to 1931 and from 1934 to 1945.
Forrest	Sir John (later) Lord Forrest	The first Premier of Western Australia, Forrest held office from 1890 to 1901 when he resigned to enter the House of Representatives in the first Federal Parliament where he became a member of Cabinet. Prior to becoming Premier, Forrest had given service to the Colony as an explorer, surveyor, Surveyor-General and Commissioner of Crown Lands. He was knighted in 1891 and created Lord Forrest, Baron of Bunbury in 1918.
Fremantle	Town (now City) of Fremantle	The townsite of the port of Fremantle was laid out in 1829 soon after the proclamation of the new Colony of Western Australia. Fremantle was proclaimed a City on 3 June 1929, the occasion of its centenary. It derived its name from Captain Charles H. Fremantle who landed in Cockburn Sound from H.M.S. ' Challenger ' on 2 May 1829 and took formal possession of the territory in the name of His Majesty King George IV.
Kalgoorlie	Municipality of Kalgoorlie	Gold was discovered in the area now known as Kalgoorlie in 1893 by the partners Hannan, Flanagan and O'Shea, and the find was recorded at Coolgardie on 17 June. The township was proclaimed the Municipality of Kalgoorlie in February 1895.
Moore	G. M. Moore	Advocate-General of the Colony, George Fletcher Moore was a member of the first Legislative Council which was established in 1831. He was appointed a Commissioner following the establishment of a Civil Court in 1832.
Perth	City of Perth....	An official ceremony was held on 12 August 1829 to mark the foundation of the capital of the Colony of Western Australia. The name ' Perth ' was given to the capital, Perth being the shire represented in the House of Commons by the Secretary of State for Colonies. Perth was proclaimed a City in 1856.
Stirling	Captain (later Sir) James Stirling	In March 1827, Captain Stirling in command of H.M.S. ' Success ' explored the Swan River area and his reports and support were largely responsible for the decision to found the Colony in 1829. Captain Stirling was appointed the first Lieutenant-Governor and arrived in the ' Parmelia ' on 1 June 1829. He was commissioned as Governor on 4 March 1831.
Swan	Swan River	In January 1697, Commander Willem de Vlaming landed on the Western Australian coast, probably near the present Cottesloe and came upon a river which he named the ' Swan River ' because of the presence of many black swans.

PRINCIPAL EVENTS OF 1969

January 22. The Premier, Sir David Brand, drove the last spike in the 265-mile railway linking Port Hedland with iron-ore deposits at Mount Whaleback to officially mark the end of the first phase of the Mount Newman iron-ore project.

February 18. The Minister for Works and Water Supplies, the Hon. Ross Hutchinson, opened the 600-foot land-backed berth at Port Hedland.

February 21. Announcement made by the Department of Public Works and Water Supply that the first section of the $30 million Perth Medical Centre at Hollywood had been completed.

March 19. The Premier, Sir David Brand, announced that Her Majesty the Queen had approved a warrant for an official coat of arms for Western Australia.

March 25. An agreement (subsequently ratified by Parliament) was signed by the State Government and Norseman Gold Mines No Liability for the production of salt for export from deposits at Lake Lefroy south of Kalgoorlie. The second period of the first session of the twenty-sixth Parliament commenced.

March 28. The first overseas container ship to visit an Australian port, the ' Encounter Bay ', berthed in Fremantle.

March 29. The Port of Fremantle Container Terminal was officially opened by the Premier, Sir David Brand.

April 1. The first cargo of iron ore from Mount Whaleback was shipped to Japan. Initial shipment made from Cape Cuvier, north of Carnarvon, of salt from deposits at Lake MacLeod.

April 10. The Minister for National Development, the Hon. David Fairbairn, officiated at a ceremony to mark the beginning of the construction of the main storage dam on the Ord River, the second phase of the Ord River Irrigation Scheme.

April 26. The plant of the newspaper, ' The Independent ', was officially opened by the Governor, Sir Douglas Kendrew.

April 28. An agreement (subsequently ratified by Parliament) was signed by the State Government and Exmouth Salt (1969) Pty. Ltd. for the production and export of salt from an area south of Onslow.

May 6. The second period of the first session of the twenty-sixth Parliament ended.

May 30. A twenty-four-bed hospital at Southern Cross was officially opened by the Minister for Health, the Hon. G. C. MacKinnon.

June 15. The first regular standard gauge passenger train arrived in Perth from Port Pirie, South Australia.

June 17. The third period of the first session of the twenty-sixth Parliament commenced.

June 19. The first session of the twenty-sixth Parliament ended.

June 26. The Mount Newman iron-ore project was officially opened by the Governor-General, Sir Paul Hasluck at the site of the deposits on Mount Whaleback.

July 20. The millionth ton of iron ore was loaded at Port Hedland from the Mount Newman project.

July 31. The second session of the twenty-sixth Parliament commenced.

August 14. The Leslie Salt Company's project for the production of salt near Port Hedland was officially opened by the Minister for Industrial Development, the Hon. C. W. M. Court.

August 29. Western Australia's last trolley-bus made its final scheduled run.

September 30. An agreement (subsequently ratified by Parliament) was signed by the State Government and Western Aluminium No Liability for the establishment of an alumina refinery near Pinjarra.

October 17. A plaque at Eucla Pass to commemorate the completion of the sealing of the Western Australian section of Eyre Highway was unveiled by the Premier, Sir David Brand.

October 31. American astronauts Neil Armstrong, Edwin Aldrin and Michael Collins visited Perth.

November 12. First period of the second session of the twenty-sixth Parliament ended.

December 8. Geraldton's first television station ABGW-6 was officially opened and commenced regular transmission.

LIST OF SPECIAL ARTICLES AND MISCELLANEOUS MATTER CONTAINED IN PREVIOUS ISSUES

(Commencing with New Series: No. 1-1957)

This list refers to special articles and other more or less important miscellaneous matter which have appeared in previous issues of the Year Book but which are not included, or are included in an abbreviated form only, in the present issue. Owing to considerations of space, the deletions are necessary to make room for new material and the list will be revised each year to provide readers with a cumulative index of special articles or topics.

Article or Topic	Year Book
Basic wage, historical summary—	
Commonwealth	1957, pp. 304-6 1960, pp. 355-9 1962, pp. 364-8 1964, pp. 385-9 1965, pp. 401-4 1967, pp. 411-15 1968, pp. 396-401
State	1957, pp. 308-9 1960, pp. 359-60 1962, pp. 368-9 1964, pp. 391-3 1965, pp. 407-8 1967, pp. 418-19 1968, pp. 403-5
Computer Service Centre, Perth	1969, p. 504
Cyclones, tropical	1968, pp. 37-44 1969, pp. 43-50
Electoral Provinces and Electoral Districts	1965, p. 102 1967, p. 106 1968, p. 94 1969, pp. 102-3
Flora of Western Australia—	
Acacia	1964, pp. 59-60 1965, pp. 59-60
'Christmas tree' (*Nuytsia floribunda*)	1957, p. 44 1960, p. 50 1962, p. 51
Economic value of the flora	1957, p. 52 1960, p. 58 1962, p. 59 1965, pp. 65-6 1967, pp. 68-9 1968, pp. 54-5
Orchids	1967, pp. 62-3 1968, pp. 48-9
Special features of the flora	1957, pp. 44-5 1960, pp. 50-1 1962, pp. 51-2
Governors and Administrators of Western Australia—	
1828 to 1951	1957, p. 65
1901 to 1959	1960, p. 81
1901 to 1951	1962, p. 83
1901 to 1963	1965, p. 97
1901 to 1963	1967, p. 101
1901 to 1963	1968, p. 89
Governor Stirling's Commission dated 4 March 1831, text of	1965, pp. 452-4
Historical review: chronological notes from 1829	1957, pp. 2-18 1960, pp. 2-22 1962, pp. 2-24, 404-9 1964, pp. 2-32 1965, pp. 2-31, 444-51 1967, pp. 2-33

Article or Topic	Year Book
Land—methods of alienation	1957, pp. 165-7 1960, pp. 199-201 1962, pp. 207-9 1964, pp. 223-5 1965, pp. 229-31 1967, pp. 235-7 1968, pp. 240-2 1969, pp. 276-8
Land—methods of Leasing	1957, pp. 167-70 1960, pp. 201-5 1962, pp. 209-13 1964, pp. 225-9 1965, pp. 231-5 1967, pp. 237-41 1969, pp. 278-83
Land settlement schemes, government	1957, pp. 172-3 1960, pp. 206-8 1962, pp. 215-17 1964, pp. 231-2 1965, pp. 237-9 1967, pp. 243-5 1968, pp. 244-6
Land tenure system, origin and development of	1957, pp. 164-5 1960, pp. 198-9
Legislation, summary of—	
1957 and 1958	1960, pp. 87-9
1959 and 1960	1962, pp. 89-96
1961 and 1962	1964, pp. 104-11
1963 and 1964	1965, pp. 107-14
1965	1967, pp. 111-15
1966	1968, pp. 99-106
1967	1969, pp. 108-15
McNess Housing Trust	1960, p. 150 1962, p. 155 1964, p. 171 1965, p. 176 1967, p. 182 1968, p. 184 1969, p. 205
Meteorological services—	
History of	1960, pp. 34-5
Provision of	1962, pp. 36-7 1964, pp. 44-5 1965, pp. 44-5 1966, pp. 46-7
Pesticides, effect on beneficial forms of life	1968, pp. 82-3 1969, pp. 90-1
Railways—	
Origin and development	1957, pp. 274-5 1960, pp. 319-20 1962, pp. 328-9 1964, pp. 350-1 1965, pp. 360-1 1967, pp. 371-2 1968, pp. 360-1
Private	1957, p. 276 1960, p. 322 1962, p. 331 1964, p. 353 1965, p. 365

Article or Topic	Year Book
Railways—*continued*	
Timber	1957, p. 277 1960, p. 323 1962, p. 333 1964, p. 355 1965, p. 365 1967, pp. 374-5 1968, pp. 363-4
Trade, historical summary of	1957, pp. 251-2 1960, pp. 295-6 1962, pp. 304-5 1964, pp. 325-6 1965, pp. 335-6 1967, pp. 346-7
University—principal benefactions	1957, p. 101 1960, p. 128 1962, p. 133 1964, p. 149 1965, p. 153 1967, p. 156 1968, p. 156 1969, p. 173
Wheat, development of production	1957, p. 185 1960, pp. 224-5 1962, pp. 231-2 1964, p. 252 1965, p. 260 1967, p. 269 1968, p. 270

LIST OF MAPS CONTAINED IN PREVIOUS ISSUES
(Commencing with New Series: No. 1-1957)

Map (1)	Year Book
Air routes	1957, p. 289
Electoral Provinces and Electoral Districts	1969, *between* p. 96 *and* p. 97
Electricity supplies	1967, *facing* p. 320
Perth Statistical Division	1968, *facing* p. 112
Production, main areas of	1957, p. 73
Railways and road services—routes operated	1965, p. 364 1967, *facing* p. 384
Railways road services—routes operated	1962, p. 332 1964, p. 354
Rainfall	1969 *facing* p. 32
Roads, main and important secondary	1968, *facing* p. 368
Vegetation Provinces	1957, p. 46 1960, p. 52 1962, p. 53 1964, p. 61 1965, p. 61 1967, p. 65 1968, p. 51

(1) All maps listed refer to Western Australia.

NOTE ON STATISTICAL DIVISIONS

Western Australia is divided into a number of municipal districts for the purposes of local government administration. At 31 December 1967 there were 144 such districts, which are used as the basis of presentation of data derived not only from the population census but also from many of the regular statistical collections. Information presented in this way is valuable when considering activities in particular local government areas but is often more detailed than is required for a broader geographical assessment. For this reason, the municipal districts are combined into Statistical Divisions which provide significant areas for the publication of statistics in a convenient and readily appreciable summary form.

The partition of the Australian States into Statistical Divisions originated from a resolution of a conference of 1928 between the Federal Health Council of Australia and the Statisticians of the Commonwealth and the States concerning the need for the delineation of areas appropriate for the purposes of statistical tabulation. They first became operative in 1929 after consultation between the Commonwealth Statistician, the Statisticians of the States in collaboration with the State health authorities, and the Commonwealth Department of Health. Although Statistical Divisions were devised initially for use in the compilation and presentation of vital statistics, the advantages of extending the system to other fields of statistical investigation were recognised at once and it soon came to have general application in cases where consideration of geographic areas was relevant.

The Statistical Divisions of Western Australia and their component local government areas at 31 December 1967 are listed on the following pages and are shown on the map of the State inside the back cover. The population of each Division as recorded at each of the four most recent Population Censuses is shown in the following table. The areas of the Divisions at 30 June 1969 are also given.

STATISTICAL DIVISIONS—POPULATION (*a*) AND AREA

Statistical Division	Population at Census of 30 June—				Area at 30 June 1969
	1947	1954	1961	1966	
	persons	persons	persons	persons	square miles
Perth	302,968	395,049	475,398	558,821	2,073
South-West	51,973	68,553	71,637	72,823	11,030
Southern Agricultural	24,948	36,125	41,623	44,528	22,046
Central Agricultural	43,790	55,924	57,594	58,396	30,270
Northern Agricultural	24,665	32,068	35,785	38,269	33,920
Eastern Goldfields	37,722	34,578	34,142	33,930	249,013
Central	6,370	4,794	3,959	3,486	218,011
North-West	2,638	4,220	4,563	8,355	75,731
Pilbara	1,651	2,650	3,243	7,383	171,462
Kimberley	2,774	3,543	5,668	7,644	162,363
Migratory (*b*)	2,981	2,267	3,017	3,038	....
WHOLE STATE	502,480	639,771	736,629	836,673	975,920

(*a*) Excluding full-blood Aborigines. (*b*) Refers to persons (both passengers and crew) who, at midnight on Census night, were enumerated on board ships in Western Australian ports, or ships which had left Australian ports before Census night for ports in Western Australia. It includes also those who were enumerated on long-distance trains, motor coaches or aircraft.

LIST OF STATISTICAL DIVISIONS

with component Local Government Areas at 31 December 1967

(See also pages 120 and 528)

PERTH

Cities

FREMANTLE
NEDLANDS
PERTH
SOUTH PERTH
SUBIACO

Towns

CLAREMONT
COTTESLOE
EAST FREMANTLE
MELVILLE
MIDLAND
MOSMAN PARK

Shires

Armadale-Kelmscott
Bassendean
Bayswater
Belmont
Canning
Cockburn
Gosnells
Kalamunda
Kwinana
Mundaring
Peppermint Grove
Perth
Rockingham
Serpentine-Jarrahdale
Swan-Guildford
Wanneroo

SOUTH-WEST

Town

BUNBURY

Shires

Augusta-Margaret River
Balingup
Boddington
Bridgetown
Busselton
Capel
Collie
Dardanup
Donnybrook
Greenbushes
Harvey
Mandurah
Manjimup
Murray
Nannup
Upper Blackwood
Waroona

SOUTHERN AGRICULTURAL

Town

ALBANY

Shires

Albany
Broomehill
Cranbrook
Denmark
Dumbleyung
Gnowangerup
Katanning
Kojonup
Lake Grace
Nyabing-Pingrup
Plantagenet
Tambellup
Wagin
West Arthur
Woodanilling

CENTRAL AGRICULTURAL

Towns

NARROGIN
NORTHAM

Shires

Beverley
Brookton
Bruce Rock
Corrigin
Cuballing
Cunderdin
Dowerin
Goomalling
Kellerberrin
Kondinin
Koorda
Kulin
Merredin
Mount Marshall
Mukinbudin
Narembeen
Narrogin
Northam
Nungarin
Pingelly
Quairading
Tammin
Toodyay
Trayning
Wandering
Westonia
Wickepin
Williams
Wyalkatchem
York

NORTHERN AGRICULTURAL

Town

GERALDTON

Shires

Carnamah
Chapman Valley
Chittering
Coorow
Dalwallinu
Dandaragan
Gingin
Greenough
Irwin
Mingenew
Moora
Morawa
Mullewa
Northampton
Perenjori
Three Springs
Victoria Plains
Wongan-Ballidu

EASTERN GOLDFIELDS

Towns

BOULDER
KALGOORLIE

Shires

Coolgardie
Dundas
Esperance
Kalgoorlie
Laverton
Leonora
Menzies
Ravensthorp
Yilgarn

CENTRAL

Shires

Cue
Meekatharra
Mount Magnet
Murchison
Sandstone
Wiluna
Yalgoo

NORTH-WEST

Shires

Ashburton
Carnarvon
Exmouth
Shark Bay
Upper Gascoyne

PILBARA

Shires

Marble Bar
Nullagine
Port Hedland
Roebourne
Tableland

KIMBERLEY

Shires

Broome
Halls Creek
West Kimberley
Wyndham-East Kimberley

LIST OF LOCAL GOVERNMENT AREAS
at 31 December 1967

(See also pages 120 and 528)

Local government area	City (C) Town (T) Shire (S)	Statistical Division in which situated
ALBANY	T.	Southern Agricultural
Albany	S.	Southern Agricultural
Armadale-Kelmscott	S.	Perth
Ashburton	S.	North-West
Augusta-Margaret River	S.	South-West
Balingup	S.	South-West
Bassendean	S.	Perth
Bayswater	S.	Perth
Belmont	S.	Perth
Beverley	S.	Central Agricultural
Boddington	S.	South-West
BOULDER	T.	Eastern Goldfields
Bridgetown	S.	South-West
Brookton	S.	Central Agricultural
Broome	S.	Kimberley
Broomehill	S.	Southern Agricultural
Bruce Rock	S.	Central Agricultural
BUNBURY	T.	South-West
Busselton	S.	South-West
Canning	S.	Perth
Capel	S.	South-West
Carnamah	S.	Northern Agricultural
Carnarvon	S.	North-West
Chapman Valley	S.	Northern Agricultural
Chittering	S.	Northern Agricultural
CLAREMONT	T.	Perth
Cockburn	S.	Perth
Collie	S.	South-West
Coolgardie	S.	Eastern Goldfields
Coorow	S.	Northern Agricultural
Corrigin	S.	Central Agricultural
COTTESLOE	T.	Perth
Cranbrook	S.	Southern Agricultural
Cuballing	S.	Central Agricultural
Cue	S.	Central
Cunderdin	S.	Central Agricultural
Dalwallinu	S.	Northern Agricultural
Dandaragan	S.	Northern Agricultural
Dardanup	S.	South-West
Denmark	S.	Southern Agricultural
Donnybrook	S.	South-West
Dowerin	S.	Central Agricultural
Dumbleyung	S.	Southern Agricultural
Dundas	S.	Eastern Goldfields
EAST FREMANTLE	T.	Perth
Esperance	S.	Eastern Goldfields
Exmouth	S.	North-West
FREMANTLE	C.	Perth
GERALDTON	T.	Northern Agricultural
Gingin	S.	Northern Agricultural
Gnowangerup	S.	Southern Agricultural
Goomalling	S.	Central Agricultural
Gosnells	S.	Perth
Greenbushes	S.	South-West
Greenough	S.	Northern Agricultural
Halls Creek	S.	Kimberley
Harvey	S.	South-West
Irwin	S.	Northern Agricultural
Kalamunda	S.	Perth
KALGOORLIE	T.	Eastern Goldfields
Kalgoorlie	S.	Eastern Goldfields
Katanning	S.	Southern Agricultural
Kellerberrin	S.	Central Agricultural
Kojonup	S.	Southern Agricultural
Kondinin	S.	Central Agricultural
Koorda	S.	Central Agricultural
Kulin	S.	Central Agricultural
Kwinana	S.	Perth
Lake Grace	S.	Southern Agricultural
Laverton	S.	Eastern Goldfields
Leonora	S.	Eastern Goldfields
Mandurah	S.	South-West
Manjimup	S.	South-West
Marble Bar	S.	Pilbara
Meekatharra	S.	Central
MELVILLE	T.	Perth
Menzies	S.	Eastern Goldfields
Merredin	S.	Central Agricultural
MIDLAND	T.	Perth
Mingenew	S.	Northern Agricultural
Moora	S.	Northern Agricultural
Morawa	S.	Northern Agricultural
MOSMAN PARK	T.	Perth
Mount Magnet	S.	Central
Mount Marshall	S.	Central Agricultural
Mukinbudin	S.	Central Agricultural
Mullewa	S.	Northern Agricultural
Mundaring	S.	Perth
Murchison	S.	Central
Murray	S.	South-West
Nannup	S.	South-West
Narembeen	S.	Central Agricultural
NARROGIN	T.	Central Agricultural
Narrogin	S.	Central Agricultural
NEDLANDS	C.	Perth
NORTHAM	T.	Central Agricultural
Northam	S.	Central Agricultural
Northampton	S.	Northern Agricultural
Nullagine	S.	Pilbara
Nungarin	S.	Central Agricultural
Nyabing-Pingrup	S.	Southern Agricultural
Peppermint Grove	S.	Perth
Perenjori	S.	Northern Agricultural
PERTH	C.	Perth
Perth	S.	Perth
Pingelly	S.	Central Agricultural
Plantagenet	S.	Southern Agricultural
Port Hedland	S.	Pilbara
Quairading	S.	Central Agricultural
Ravensthorpe	S.	Eastern Goldfields
Rockingham	S.	Perth
Roebourne	S.	Pilbara
Sandstone	S.	Central
Serpentine-Jarrahdale	S.	Perth
Shark Bay	S.	North-West
SOUTH PERTH	C.	Perth
SUBIACO	C.	Perth
Swan-Guildford	S.	Perth
Tableland	S.	Pilbara
Tambellup	S.	Southern Agricultural
Tammin	S.	Central Agricultural
Three Springs	S.	Northern Agricultural
Toodyay	S.	Central Agricultural
Trayning	S.	Central Agricultural
Upper Blackwood	S.	South-West
Upper Gascoyne	S.	North-West
Victoria Plains	S.	Northern Agricultural
Wagin	S.	Southern Agricultural
Wandering	S.	Central Agricultural
Wanneroo	S.	Perth
Waroona	S.	South-West
West Arthur	S.	Southern Agricultural
West Kimberley	S.	Kimberley
Westonia	S.	Central Agricultural
Wickepin	S.	Central Agricultural
Williams	S.	Central Agricultural
Wiluna	S.	Central
Wongan-Ballidu	S.	Northern Agricultural
Woodanilling	S.	Southern Agricultural
Wyalkatchem	S.	Central Agricultural
Wyndham-East Kimberley	S.	Kimberley
Yalgoo	S.	Central
Yilgarn	S.	Eastern Goldfields
York	S.	Central Agricultural

INDEX

Information on the same subject appearing on succeeding pages, whether in letterpress, tabular or diagrammatic form, has generally been indexed only to the first of such pages.

Page

A

'A' Series Retail Price Index 502, 504
Aboriginal, Aborigines 1, 100, 103, 124, 125, 138, 139, 457
  education 170
  legislation 124, 125, 138
  offences by 249, 252
  population 124, 125, 138, 139
    age distribution 141
  voting rights 100, 103
Abrolhos Islands 70, 78, 326, 374
Accidents
  aircraft 458
  deaths from 150, 455
  industrial 485, 486
  road traffic 454
Acclimatisation Board 71
Acids, production of 415
Administration
  Commonwealth 98, 109
  State 98, 109
Administrator, Administrators
  of the Commonwealth 99
    Western Australia 99, 532
Adoption of children 244
Adult Education
  Board 181
  Extension Committee 181
Advisory Council, Apprenticeship 472
Aerated waters 411, 415
Aerial medical services 457
Age, ages
  of bridegrooms and brides 158, 159
    employees in factories 402
    parties of marriages dissolved 162
    population 126, 489, 490
    pupils at schools 164, 166
  pensions, pensioners 230, 242, 263
Aged persons, care of 207, 209
Aged Persons' Homes Grants 208, 209
Agent-General, London 119
Agricultural
  advisory services 367
  areas, definition of 352
  Bank of Western Australia 8, 10, 276, 286
  College, Muresk 170, 174, 274, 366
  education 170
  employment 328, 495, 496
  entomology 85, 365
  lands purchase—*see also* Land 305
  machinery 328, 331, 421, 422, 424, 425, 426, 434
  population 328
  produce, bushel weights 335

Page

Agricultural—*continued*
  production 323, 522
  research 189, 190, 319, 338, 365
  seasonal calendar 335
  water supply 310, 312
Agriculture—*see also specific crops* 273, 323, 336, 522
  Bureau of 8
  Department of 10, 269, 306, 316, 319, 321, 343, 359, 365
  employment in 328, 495, 496
  Institute of 190
  Protection Board 268, 278, 368
  tropical 318, 326, 367
  value of production 324, 332, 334, 524
Air
  pressures 34, 50
  transport 457, 458, 459
Albany Port Authority 443
Alcoholic beverages
  excise 431
  exports 429
  imports 421, 422, 423
  production 326, 334, 350
  retail sales 433
  ships' stores 429
  wholesale sales 435
Ale—*see* Alcoholic beverages
Alienation of Crown lands 305, 307, 309, 521
Altitude of climatological stations 35, 51
Alumina 28, 324, 378
Aluminium 28
Alunite 17, 29
Antimonial concentrates.... 388
Apiculture—*see* Bee keeping
Appendix 528
Apple, apples 326, 335, 336, 347
  area 334, 347
  exports 348, 424, 425, 427, 429
  production 334, 335, 347
Apprenticeship, apprenticeships 472
  Advisory Council 472
  registrations 473, 474
Apricots 335, 336, 347, 349
Arbitration authorities
  Commonwealth 470
  State 113, 118, 470, 483
Area, areas
  agricultural, definition of 352
  irrigated 318, 320
  local government—*see also map inside back cover* 120, 528, 535, 536, 537
  metropolitan 131, 136, 476
  Metropolitan Traffic 280, 449, 450, 452, 454, 460

Page

Area, areas—*continued*
north of 26°S. latitude 136
of Australia 137
crops—*see also specific crops* 327, 328, 329, 522
Crown lands 307, 309, 521
rural holdings 327, 328, 329, 338, 353, 358, 360, 362
South-West Land Division 136
States and Territories 137
Statistical Divisions 136, 137, 535
Western Australia 28, 137
pastoral, definition of 351
statistical—*see* Statistical Divisions
under pasture 327, 328, 329, 342
unincorporated 120
Argentine Ants 90, 111, 368
Arrivals—*see* Migration
Arsenious oxide 388
Art Gallery 111, 188
Artesian water supplies 19, 23, 26, 96, 311, 312, 316
Articles in previous Year Books 532
Artificial
Breeding Board 369
fertilisers—*see* Fertilisers, artificial
insemination of cattle 369
Asbestos 22, 333, 378, 381, 382, 389, 429
Assembly, Legislative 9, 98, 101, 104, 106
Assistance to
education 112, 163, 176, 180, 181, 262, 271, 272, 274
gold mining 380, 523
indigent and distressed persons 241
industry 275, 380, 415
Institute of Technology 176
primary producers 286, 338, 344, 359, 364
schools 112, 163
universities 180, 181, 184, 262, 271, 272
Associateships conferred, Institute of Technology 175
Assurance, life—*see* Insurance, life
Atmospheric pressure 34, 50
Auction sales, wool 355
Auriferous ores—*see also* Gold; Goldfields 21, 388
Australia
area of 137
Commonwealth of 98
High Court of 117, 246, 247, 470
Australian
Broadcasting
Commission 169, 466
Control Board 465
Constitution 99, 125, 246
Labor Party 100, 104, 105, 109
life tables 157
Loan Council 259
population at censuses 125
primary production 334
Universities Commission 182
Wheat Board 337, 338
Awards, industrial 470, 472, 473, 474, 479
incidence of 474

Page

B

Baby health centres 203, 278
Bacon, ham
factories 410
production 363, 410, 415, 425
retail price 505
Bags and sacks 423
Bananas 318, 326, 335, 336, 349, 351
Bank, banks 286, 513
advances 287, 513
Agricultural, of Western Australia 8, 10, 276, 286
charges 289
Commonwealth, of Australia 286
Commonwealth Development, of Australia 286
Commonwealth Savings, of Australia 286, 289
Commonwealth Trading, of Australia 285, 286
debits to customers' accounts 289, 513
deposits 287, 513
employment 498
exchange rates 289
interest rates 290
Reserve, of Australia 286
Rural and Industries, of Western Australia 115, 278, 286, 287, 289, 290
savings 286, 289, 513
trading 286, 513, 528
Banking
Corporation, Commonwealth 286
employment 498
institutions, Commonwealth 286
Bankruptcy 118, 249, 299
Bark, tannin 372, 373
Barley
area 334, 341, 343, 522
exports 341, 424, 425, 427, 429
Marketing Board, Western Australian 342
production 326, 334, 335, 341, 522
Barytes 378, 389
Basalt 27, 29, 389
Basic Wage, Wages 476, 532
definition of 477
fixation 113, 470, 476
history 476, 532
loadings 479
margins 476, 479
rates 476, 479, 527
Batteries
electrical 422
gold 190, 381
Bauxite 14, 28, 270, 378, 382, 389
Beach sands, mineral 323, 378, 384
Beans 318, 327, 335, 343, 346, 368
Beds in hospitals 205
Bee keeping 324, 333, 334, 364, 373, 524
Beef
cattle 357
roads 278
exports 424, 425, 427, 429, 516
retail prices 505
Beer—*see* Alcoholic beverages
Bees-wax 365
Beetroot 346

Page

Benefits
- friendly societies 294
- funeral 231, 263, 294
- hospital, medical and pharmaceutical 237, 263
- repatriation 235
- social services 229, 263, 264
- unemployment, sickness and special 229, 232, 263
- workers' compensation 484

Bentonite 389
Beryl, beryllium 21, 327, 378, 382
Betting 304
- Tax 266, 270, 304

Birds 62, 69
Birth, births 142, 510
- ex-nuptial 143, 144
- maternity allowances for 234, 263
- multiple 143
- Perth Statistical Division 143
- rates 146, 156, 510
- registration of 142
- stillbirths 143, 144, 154

Birthplaces of population 128
Bismuth concentrates 388
Blind, pensions for the 230
Blue
- Books (colonial) .... iii, 324, 502
- Bush 55

Board—*see specific Boards*
Boarded-out children 244
Books, Blue (colonial) .... iii, 324, 502
Boots and shoes—*see also* Footwear 415
Botanic Garden 194, 195
Bran 409, 415
Bread
- production 415
- retail price 505

Bricks, brickworks 398, 408, 415, 425
Bridegrooms
- ages of 158, 159
- conjugal condition of 159

Brides
- ages of 158, 159
- conjugal condition of 159

Bridges 274, 280
Broadcasting, wireless 169, 465
Building, buildings
- control 224
- employment in 227, 491, 492, 493, 494
- factory, value of 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
- materials index 505
- operations 225, 526
- societies 112, 220, 222, 295
- stone 378, 389

Bulk handling of grain 337
Bullion, gold 424, 425, 426, 519
- silver 424, 425, 427

Bunbury Port Authority 443
Bunker coal—*see* Coal
Bureau of Agriculture 8
Bursaries, scholarships 163, 178, 181, 182
Buses
- motor 274, 444, 450, 453, 454, 459
- registrations 450, 515
- trolley 453, 454

Page

Bush Fires Board 258
Bushel weights 335
Butter
- exports 517
- factories 359, 411
- marketing 359
- production 323, 411, 415, 525
- retail price 505

C

'C' Series Retail Price Index 504
Cabbages 347
Cabinet, Cabinets 99, 101, 102
Cabinet making 412
Cable communication 464
Caesium 389
Cancer 202
Capital cities 131, 437, 503, 504, 506
Cargo, shipping 438
Carrots 346
Cases tried in
- higher courts 249, 253
- Magistrates' courts 250, 253

Cattle 323, 326, 327, 329, 330, 331, 352, 357, 359, 445, 517
- beef 357
- dairy 357
- exports 424, 425, 426, 517
- for meat production 329, 330, 331, 357, 358, 363
- milk production 329, 330, 331, 357, 360, 361
- herds, size of 331, 358, 360, 361
- research 368
- slaughtered 334, 358, 359
- slaughter levy 263

Cauliflowers 346, 347
Causes of death 149, 153
Caves 196
Cement 408
Census of retail establishments 432, 497
Censuses of population 124, 125, 486, 495
- Aborigines 124, 125, 139
- age 126, 489, 490
- birthplace 128
- density 131, 136
- expectation of life 157
- geographical distribution 131
- industry 129, 491, 492, 493, 494
- intercensal increase 130, 133, 135
- marital status 129, 489, 490
- masculinity 125, 126, 135
- migration 130, 131, 133, 134, 135
- nationality 128
- occupation 129, 495
- occupational status 129, 488, 491, 496
- population of
  - cities 131
  - Statistical Divisions 131, 134, 137, 535
  - towns 131
  - urban centres 131, 133
- religions 129
- rural population 131
- urban population 131
- work force 487, 494, 495

Central Road Trust Fund 278, 279

Page

Cereals—*see specific cereals*
Cerium 389
Charitable institutions 207, 244, 278
Cheese 323, 326, 359, 411, 415, 505
Chemical fertilisers—*see* Fertilisers, artificial
Cheque-paying banks—*see* Bank, banks
Cherries 336, 347, 349
Chest
  clinics 203
  Hospital, Perth 206
Chief Justice 99, 103, 117, 118
Child—*see also* Juvenile
  endowment 229, 234, 244, 263
  welfare 112, 241, 243
Children, children's
  adoption of 244
  boarded-out 244
  courts 243, 248
  employment of 244
  endowed 234
  handicapped 169
  health services for 203, 241, 263
  in institutions 244
  neglected 243
  private 244
  school 164, 241, 291, 488
Chronological notes from 1829 533
Churches—*see* Religion of population
Cigarettes, cigars—*see* Tobacco
Cities—*see also map inside back cover*.... 119, 120, 131, 437, 503, 504, 506, 536
Citrus fruits—*see also specific fruits* 326, 347, 348, 351
Civil Aviation, Department of 457, 464
Clays 378
Climate 28, 34, 47, 53
Climatological stations 35, 40, 51
Clothing
  factories 398, 399
  imports 421, 422, 423
  items of, production 415
  retail sales 433
Clovers 191, 326, 335, 336, 342, 343, 353, 359, 368
Coal 19, 23, 27, 190, 326, 389, 399, 405, 413, 414
  bunker 429
  carried on railways 445
  discovery 378, 382
  excise on 431
  gas 190, 414, 415
  Industry Tribunal, Western Australian 471
  Mine Workers' Pensions Fund 284
  mines, men working at 383
  mining leases 306
  production 378, 383, 523
  used in factories 405
  value 333, 378, 383, 523
Coastal
  configuration 18
  Shipping Commission, Western Australian 271
Coastline, length of 19, 64
Cobalt 387
Cockburn Sound 78, 413, 442

Page

Coinage 285
Coke 190, 405, 415
College, colleges
  Advanced education 182
  Agricultural 170, 174, 275, 366
  Teachers' 171, 183
  University 180
Commission—*see also* Royal
  Broadcasting, Australian 169, 466
  Conciliation and Arbitration, Commonwealth 470, 473, 476, 479, 480, 483
  Electricity, State 274, 278, 399, 412, 413
  Grants, Commonwealth 260
  Housing, State 116, 218, 274, 278, 280
  Industrial, Western Australian 113, 470, 472, 473, 476, 479
  Lotteries 203, 244, 302
  National Debt 259, 275
  Overseas Telecommunications 464
  Universities, Australian 182
  Whaling, International 376
Commissioner, Commissioners
  Conciliation 470
  Electoral 111
  Industrial 470, 471
  of Main Roads 448, 449, 453
    Police 116, 254, 280, 452, 460
    Public Health 113, 201, 202
    Rural and Industries Bank 286
    Transport 267, 459, 460
  Town Planning 224
Commonwealth
  Aid (roads) 262, 278, 452
  Bank of Australia 286
  Banking Corporation 286
  Basic Wage 476, 527
  Conciliation and Arbitration Commission 470, 473, 476, 479, 480, 483
  Constitution 98, 125, 246
  Court of Conciliation and Arbitration 470, 482
  Development Bank of Australia 286
  Employment Service 499, 500
  Grants Commission 260
  Industrial Court 117, 470
  of Australia 98
  Parliament 99, 109, 111
  Rehabilitation Service 231, 263
  Savings Bank of Australia 286, 289
  Scientific and Industrial Research Organization 191, 319, 367, 375
  Trading Bank of Australia 285, 286
Commonwealth-State
  Financial Agreement 259, 261, 262
  Housing Agreement.... 112, 219, 221, 274, 278, 295
Communication 461, 491, 492, 494, 498, 514
Companies Registration Office 301
Compensation, workers' 278, 292, 300, 484
Comprehensive Water Supply Scheme—*see also* Water 312, 313
Computer Service Centre, Perth 532
Conciliation and Arbitration
  Commission, Commonwealth 470, 473, 476, 479, 480, 483
  Commonwealth Court of 470, 482
Confectionery 421, 422, 426
Congenital malformation, deaths from 150, 153

Page

Consolidated Revenue Fund 181, 261, 268, 269, 511
Constitution
  Commonwealth 98, 125, 246
  State 8, 98, 101, 103, 105
Consular representatives.... 118
Consumer Price Index 502, 526
Convictions, court 249
Convicts 5, 124, 323
Cook, James 2
Copper, copper ores 18, 22, 190, 327, 368, 378, 383, 387, 389, 427
Coral, corals 78
Coroners' Courts 248
Correspondence tuition 169
Cotton 275, 319, 333, 334, 335, 344, 424, 425, 426
Council, Councils
  Cancer 202
  Executive 99
  Health Education 201
  Legislative 6, 9, 98, 101, 103, 104, 106, 110
  Loan, Australian 259
  Municipal—*see also* Municipalities 120
  National Fitness 196
  National Safety 257
  Privy 117, 247
  Trades and Labor of Western Australia 476, 484
Country Party 100, 101, 102, 104, 105, 109
Court, Courts
  Appeal, Western Australian Industrial 118, 470
  Bankruptcy 118, 249, 299
  Children's 243, 248
  Coroners' 248
  District 248, 528
  Full 117, 118, 247
  High, of Australia 117, 246, 247, 470
  Industrial, Commonwealth 117, 470
  Judges' 117, 247, 249
    civil cases 249
    convictions 250, 253
  Licensing 248
  Local 248
  Magistrates' 248
    civil cases 249
    convictions 250, 253
  of Arbitration, Western Australian 118, 470, 483
  Conciliation and Arbitration, Commonwealth 470, 482
  Police 248
  Session 248
  Summary Relief 242, 246, 248
  Supreme 118, 246, 247
Crayfish—*see* Rock lobsters
Crime 249
Crops—*see also specific crops* 327, 328, 329, 333, 334, 335, 336, 351, 522
Crown land—*see* Land
Crown Law Department 246
Crude oil 378, 387, 390
Cupreous ore 378, 384
Currants 326, 334, 350, 427
Currency 285
Customs
  collections 263, 431
  tariff 417, 430, 431
Cycles, motor 450, 455, 456, 515
Cyclones 34, 48, 532

D

Dairy
  cattle 357
  produce
    levy 263
    retail prices of 505
  products, marketing of 359
Dairying 10, 190, 323, 324, 326, 333, 334, 359, 524
Dale, Ensign 4
Dampier, William 2, 56
Dams—*see* Reservoirs; Water
Day hospitals 206
Death, deaths 142, 147, 282, 510
  benefits, State Housing Commission 222
  causes 149, 153
  infant 147, 152, 510
  rates 148, 154, 455, 510
  registration of 142
  road traffic accident 455
Debt, public 259, 275, 512
Decimal currency.... 285
Degrees conferred, University 179
Democratic Labor Party 15
Demography 124, 142, 509
Density of population 124, 131, 136
Dental services 204
Departures—*see* Migration
Deserted wives, assistance to 231, 242
Development Bank of Australia, Commonwealth 286
Diabetes mellitus, deaths from.... .... 149, 151
Dingoes 67, 68, 368
Diorite 378, 389
Diphtheria 202, 203
Diplomas conferred, Institute of Technology 175
Direction of trade 418, 419
Disabled Persons' Accommodation Grants 208
Disabled persons, care of 207
Diseases
  deaths from 149, 153
  infectious 202
  notifiable 202
  of early infancy, deaths from 153
  venereal 202
Distances between cities.... 437
District Court 248, 528
Divorce, divorces 161, 249
Dried fruits—*see* Fruits
Drivers' and riders' licences, vehicle 255, 270, 449
Drug plants 59, 115
Drunkenness 250, 251, 252
Duty, Duties
  customs 263, 431
  estate 263, 265
  excise 263, 431

Page

Duty, Duties—*continued*
- gift 263
- probate and succession 265, 270
- stamp 116, 265, 270
- totalisator 266, 270, 304

Dwellings
- class of 211
- completed 225, 228, 526
- construction, State Housing Commission 221
- facilities of 215
- for age pensioners 209
- geographical distribution of 216
- inmates 211, 212
- material of outer walls 214
- motor vehicles at 215
- nature of occupancy 214
- number of rooms 213
- occupied 210, 212, 213, 216, 217, 218
- private 210, 216, 217, 218
- rent, rented 502
- unoccupied 210, 212, 216, 218

E

Earnings, weekly average 481, 482

Earthquakes 30

Eastern Goldfields Transport Board 453, 454

Education 163
- adult 181
- agricultural 170
- assistance to 112, 163, 176, 180, 181, 262, 271, 272, 274
- Council, Health 201
- Department 163, 164, 167, 187, 472
- employment in 168, 171, 172, 175, 179, 498
- examinations, public 168, 180
- expenditure on 176, 180, 181, 182, 271, 273, 274, 278, 511
- Institute of Technology 116, 170, 173, 175
- of handicapped children 169
- natives 170
- Parents and Citizens' Associations 169
- pre-school 172
- provision for, in remote areas 169, 457
- scholarships and bursaries 163, 178, 181, 182
- school, schools
  - agricultural 170
  - attendance, attendances at 164
  - broadcasts to 169
  - correspondence 169
  - enrolments 164, 166, 167
  - government 163, 164, 166, 167, 273
    - age of pupils 164, 166, 167
    - primary enrolments 164, 166
    - secondary enrolments 164, 167
    - sex of pupils 164
  - leaving age 164
  - non-government 112, 164, 166, 167, 172
    - age of pupils 164, 166, 167
    - primary enrolments 164, 166
    - secondary enrolments 164, 167
    - sex of pupils 164
  - of Mines 174
    - the air 170, 457
  - primary 163, 166, 168
  - secondary 163, 168, 169, 172

Page

Education—*continued*
- teacher training 171
- technical 163, 170, 472, 473
- University 11, 176, 189, 283, 369
- visual aids in 169
- vocational guidance 169, 170

Egg, eggs
- exports 364, 429
- Marketing Board, Western Australian 363
- production 326, 364
- retail price 505

Elections
- Commonwealth 100, 109
- local government 121
- State 98, 103, 110

Electoral
- Commissioners 111
- provisions
  - Commonwealth 100
  - local government 121
  - State 103, 104, 532, 534

Electrical appliances and equipment 421, 422, 423

Electricity
- Commission, State 274, 278, 399, 412, 413
- generation and distribution 404, 405, 412, 415, 512, 525
- undertakings, local government 279, 281, 282
- used in factories 399, 404, 405

Electric motors 396, 404, 407, 408, 409, 410, 411, 412, 413, 414

Emeralds 378

Employers' Federation, Western Australian 484

Employment 487, 526
- at mines 115, 379
- classification by industry 491, 498
- estimates 495, 497, 526
- government 499
- in building 227, 491, 492, 493, 494
- factories 326, 392, 395, 396, 397, 398, 399, 400, 401, 402, 407, 408, 409, 410, 411, 412, 413, 414
- fishing 376, 377
- hospitals 204
- manufacturing 491, 492, 493, 494, 498
- mineral exploration, private 390
- Statistical Divisions 326, 398, 399
- teaching
  - Institute of Technology 175
  - school 168, 172
  - University 179
- transport 444, 454, 491, 492, 493, 494, 495, 498
- labour force survey 495, 496
- of children 244
- Postmaster-General's Department 461
- on rural holdings 328
- Service, Commonwealth 499, 500
- sheltered 208
- work force 487, 494, 495, 496

Endowment, endowments
- child 229, 234, 244, 263

Page

Engineering works 409
Engines in factories 396, 404, 407, 408, 409, 410, 411, 412, 413, 414
Enrolments
  Institute of Technology 175
  school 164, 166, 167, 172
  Teachers' College 171
  technical education 171
  University 179
Entomology—*see also* Insects 85, 192, 365
Equal pay 113, 479
Estate Duty 263, 265
Evaporation 45, 47
Events, principal, of 1969 531
Examination, examinations
  dental, in schools 204
  medical
    for venereal diseases 202
    in schools 203
  of bankrupts 299
  Public 168, 180
    Board 180
  X-ray, for tuberculosis 203
Exchange rates 285
Excise
  collections 263, 431
  commodities subject to 431
  rates 431
Executive Council 99, 106
Ex-nuptial births 143, 144
Expectation of life 157
Experiment, experimental farms 366
Exploration for minerals, private 389
  expenditure 390
  petroleum 390
    finance 391
    wells and footage drilled 391
Export charges, primary products 263
Export Price Index 507
Exports—*see also specific items*
  classification 417
  destination 419, 426, 427
  items of, principal 424, 425, 426, 427, 515, 516, 517, 518, 519
  valuation of 418
  value 419, 420, 424, 425, 426, 427, 428, 429, 430, 515, 516, 517, 518, 519, 520
External Trade—*see also* Direction of trade; Exports; Import, imports 417, 418, 428, 520

F

Factory, factories—*see also specific types of factory*
  classification 393
  definition of, statistical 392
  development of 395
  distribution of, geographical 326, 398
  employment 326, 392, 395, 396, 397, 398, 399, 400, 401, 402, 407, 408, 409, 410, 411, 412, 413, 414, 425
  engines used in 396, 404, 407, 408, 409, 410, 411, 412, 413, 414
  government 414

Page

Factory, factories—*continued*
  land and buildings 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
  materials used in 397, 398, 399, 404, 407, 408, 409, 410, 411, 412, 413, 414
  number of 395, 396, 397, 398, 399, 400, 401, 407, 408, 409, 410, 411, 412, 414, 425
  output, value of 392, 397, 398, 405, 407, 408, 409, 410, 411, 412, 413, 414, 425
  plant and machinery 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
  power, fuel and light used in 397, 398, 399, 404, 405, 407, 408, 409, 410, 411, 412, 413, 414
  production
    items of 407, 408, 409, 410, 411, 412, 414, 415, 425
    net 392, 396, 397, 398, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 425
  salaries and wages 392, 397, 398, 403, 407, 408, 409, 410, 411, 412, 413, 414, 425
  summary according to industry 397
    of Australian statistics 397, 400
Farm, farms
  experiment, experimental 366
  Management Service Laboratory 369
  production—*see also* Agricultural; Agriculture; Farming; Primary.... 323, 521, 522, 524
  State 366
Farmers, assistance to
  financial 286, 338, 344, 359, 364
  technical 359, 365
Farming
  bee—*see* Bee keeping
  dairy 190, 323, 326, 333, 334, 359, 524
  ley 326
  pig 190, 326, 329, 361, 362, 445, 521
  poultry 190, 324, 326, 329, 333, 334, 363
  sheep 190, 323, 326, 327, 329, 352
  wheat 190, 323, 326, 327, 330, 336, 522
Fauna 59, 62, 79, 193, 194, 195, 196
Federation, Commonwealth 98
Fellmongering—*see* Wool
Felspar 327, 378
Ferries 456
Fertilisers, artificial 351
  carried on railways 445
  factories 326, 401, 408, 409
  imports 421, 423
  production 388, 408, 409, 415, 425
    ores used in 351, 378, 384
  use of 190, 342, 351, 368
Fertility and reproduction rates 147
Festival of Perth 181
Finance
  Commonwealth-State 220, 241, 259, 261, 262, 269, 278, 295, 312, 319, 452
  Companies 297
  Fremantle Port Authority 441
  Government pension and superannuation schemes 283, 284
  hospitals 205
  local government 122, 279
  Lotteries Commission 302
  private 285, 513

Page

Finance—*continued*
public 259, 511
railways 443, 444, 512, 514
research 183
roads 262, 278, 279, 449, 452
Financial
Agreement, Commonwealth-State 259, 261, 262
assistance grants 176, 180, 182, 207, 209, 261, 262, 269, 320, 321
Fire, fires
Brigades 279, 281
Board, Western Australian 258, 292
insurance 291
protection 258
forest 372
Firewood 373, 405, 445
Fish—*see also* Rock lobsters (Crayfish); Fisheries, fishing
exports 373, 424, 425, 426, 427, 429, 518
production 324, 326, 334, 374, 375
species of 65, 74, 374, 375
Fisheries, fishing—*see also* Fish; Pearls, pearl-shell; Whales, whaling 68, 324, 326, 334, 373, 376
employment in 376, 377
research 193, 375
value of 324, 333, 334, 374, 375, 377, 524
Fitness Council, National 196
Flats 210, 212, 213, 214, 215, 216, 217, 218, 220, 225, 226, 227, 228, 526
Flax 343
Flinders, Matthew 2, 5
Flora—*see also* Forest, forests 52, 194, 195, 532
Floral emblem of the State vii
Flour, wheaten
exports 336, 424, 425, 429, 517
milling 326
production 409, 410, 415, 425
retail prices 505
Flying Doctor Service, Royal 170, 457, 459, 465
Fodder crops 342, 343
Foodstuffs—*see also specific foodstuffs*
exports 336, 424, 425, 426, 427, 429, 516
imports 421, 422, 423
retail prices 505
Footwear 415
exports 424, 425, 426
imports 421, 422
retail sales 433
Forest, forests 370
administration and conservation 272, 278, 372
fire protection 372
products—*see also specific products* 323, 372, 373
situation of 55, 370, 371, 372
State 370, 371
tenures 306
tree species 55, 97, 370, 371, 372
Forestry
employment in 498
production, value of 324, 333, 334, 524
Forrest
Alexander 352
John 9, 10, 102, 530

Page

Fossils 19, 27, 78
Foxes 68, 368
Free milk for school children 241, 263
Freight
air 457, 458
railway 444, 445, 446, 514
road 444, 459
sea-borne 438
Fremantle, Charles H. 3, 530
Fremantle Port Authority 441
Friendly societies 294
Frosts 40
Fruit, fruits—*see also* specific fruits
canned
charge 263
exports 507
imports 421, 422
retail prices 505
dried
exports 350, 507
imports 422
production 112, 350
fly eradication 268, 270
fresh
carried on railways 445
exports 348, 424, 425, 427, 429, 517
imports 421, 422
used in factories 410
production 112, 318, 326, 347
Fuel oil—*see also* Oil, oils 405, 413
Fuel, power and light consumption in factories—*see also* Power, electric 397, 398, 399, 404, 405, 407, 408, 409, 410, 411, 412, 413, 414
Fund—*see specific funds*
Funeral benefits 231, 263, 294
Furniture factories 412

G

Gaols 255
Gas
coal—*see* Coal
natural 19, 23, 378, 390
town 414, 415, 525
Gauges, railway 444, 445, 447
Geology 19, 29, 96
Gift duty 263
Gold—*see also* Goldfields
discovery 7, 16, 124, 323, 378, 379
exploration 389
exports 424, 425, 426, 507, 519
mining
assistance to 380, 523
employment in 379, 381
leases 306, 381
production 7, 334, 378, 380, 523
refined 380
value 333, 334, 378, 523
Goldfields
basic wage 476
employment 379, 381
proclaimed 379
water supply 310, 312
Goods traffic, railway 444, 445, 446, 514

Page

Government
- Commonwealth 98, 99, 109
- Employees' Housing Authority 220, 221
- employment 499
- land settlement schemes 309, 533
- local 98, 119, 499
- pension and superannuation schemes 282
- representative 98
- responsible 98, 101
- State 98, 101, 109

Governor, Governors 99, 106, 532
Governor-General 99
Grain—*see also specific grains* 326, 329, 330, 334, 335, 351, 522
- carried on railways 445

Grants
- Aged Persons' Homes 208, 209
- by local government authorities 281
- Commission, Commonwealth 260
- Disabled Persons' Accommodation 208
- dwellings for age pensioners 209
- financial assistance 176, 180, 182, 207, 209, 261, 269, 320, 321
- for waterworks 262, 312, 319
- Homes Savings 223, 263
- Institute of Technology 176
- Nursing homes 209
- of Crown land 306
- Special, Commonwealth 261, 262, 269
- States (tax reimbursement) 260
- under Section 96 of Constitution 260
- University, universities 180, 182, 184, 262, 271
- Workshops, Sheltered 208

Grapefruit 336, 348
Grapes—*see also* Vine fruits 326, 334, 335, 350, 351
Graphite 389
Grasses 54, 56, 342
Grazing—*see also* Cattle; Pastoral; Pasture; Sheep, lambs; Wool 327, 342, 352
Gregory, F. T. 352
Grey, George 352
Group Settlement Scheme 10, 309, 359
Guano 70
Guardian's allowance 231, 237
Guidance, educational 169, 170
Gypsum 17, 29, 327, 378

H

Hackett, John W. 176
Hail 44
Ham—*see* Bacon, ham
Handicapped children 169
Harbour Boards 441
Harbours—*see* Ports
Hardwoods—*see also* Jarrah; Karri; Tuart; Wandoo 55, 323, 370
Hartog, Dirk 1
Hay
- area 334, 342, 523
- production 334, 342, 523

Health
- Boards of, local 201
- Department of 201
- Educational Council 201

Page

Health—*continued*
- expenditure on 511
- insurance 237, 294
- laboratories 202
- Public, Commissioner of 113, 201, 202
- services 201, 206, 207, 237, 239, 241, 263, 282

Heart diseases, deaths from 150, 151
Heights above sea-level 17, 34, 35, 51
Hides and skins 370, 424, 425, 426, 427, 429, 507, 518
High
- Court of Australia 246, 247, 470
- schools 168, 170

Highways—*see* Road, roads
Hire purchase 296, 297
Historical survey 1, 533
Hives, bee 365
Holdings, agricultural and pastoral 327, 328, 329, 338, 351, 353, 358, 360, 362
Homes
- Aged Persons', Grants for 207, 209
- for the aged and infirm 207, 220
- Savings Grants 223, 263

Honey 365, 427
- levy 263

Horsepower of engines in factories 396, 404
Horses 445, 521
Hospital benefits 237, 263, 278, 294
Hospitals 204, 241, 273, 274, 278, 281
Hotels 491, 492, 493, 494
Hourly earnings, average 482, 483
Hours of work 482, 483
House
- of Representatives 100, 109
- rents 502

Houses 210, 526
Housing 210, 272, 273, 502, 503
- Agreement, Commonwealth-State 112, 219, 221, 274, 278, 295
- at Census 210
- Authority, Government Employees' 220, 221
- Commission, State 116, 218, 274, 278, 280
- Death Benefit Scheme 222
- Government 218
- Loans 113, 219, 222, 287, 295
- Trust, McNess 116, 219

Humidity 47, 51
Hurricanes 48
Hutt, John 5
Hydro-electric power 319, 413

I

Illegitimacy 143, 144
Ilmenite 29, 270, 324, 326, 333, 378, 384, 424, 425, 426, 427, 429, 519
Immigration—*see also* Migration 272, 396
Import, imports—*see also specific items*
- classification 417
- items of, principal 421, 422, 423
- origin 423
- valuation of 418
- value 419, 420, 421, 422, 423, 428, 430

Income tax 260, 263, 264
Indebtedness, public 259, 275, 512

Page

Index numbers
export price 507
retail price 502, 504, 526
wholesale price 505, 506
Industrial
accidents 485, 486
Appeal Court, Western Australian 118, 470
awards 470, 472, 473, 474, 479
incidence of 474
Commission, Western Australian.... 113, 470, 472, 473, 476, 479
conditions 470
Court, Commonwealth 117, 470
Development
Department of 415
history of 395
disputes 470, 475, 476
Industry
geographical distribution 326, 398
of population 129, 491, 492, 493, 494
work force 491, 493, 494
primary—*see also* Primary; Rural.... 323, 327
secondary—*see also* Factory, factories; Manufacturing 392
Inebriates 256
Infant
deaths 147, 152, 510
health centres 203, 278
revenue 279
mortality rate 152, 510
Infectious diseases
cases notified 202
deaths from 149
Information service iv
Insects 79, 85
Insolvencies 299
Instalment credit for retail sales 296, 297, 299
Institute
of Agriculture 190
Technology, The Western Australian 116, 170, 173, 175
awards conferred 175
finance 176
Swan River Mechanics' 187
Institutions, charitable 207, 244, 278
Instruction, public—*see* Education
Insurance
employment in 492
fire, marine and general 291, 513
health, hospital 237, 294
life 292, 513
Motor Vehicle, Third Party 115, 267, 270, 293
Office, State Government 273, 291
of housing loans 223
Intercensal increases 130, 133, 135
Interest rates, bank 290
Internal combustion engines in factories 404
International Monetary Fund 285
International Whaling Commission 376
Interstate
air services 457
cargo, shipping 439
comparison
areas 137
average weekly earnings 481
basic wage rates 527
Consumer Price Index 503, 504

Page

Interstate—*continued*
comparison—*continued*
factories 397, 400
home building activity 218, 228
livestock numbers 363
motor vehicle usage 454
net production, manufacturing 395
population 125, 130, 137, 139, 141
primary production 334
railways, government 446
Retail Price Index variations 503, 504, 526
weather 51
wheat production 340
railway 437, 443, 446
representation 119
shipping 439
trade 418, 419, 420, 421, 422, 424, 425, 426, 428, 520
Invalid pensions, pensioners 230, 263
Investment societies 295
Iron—*see also* Pig-iron
ore 14, 16, 21, 22, 28, 29, 113, 323, 326, 327, 378, 385, 389, 443
exports 326, 327, 385, 424, 425, 426, 427, 429, 519
production 378, 385, 386
railways and ports 385, 443, 446
royalties 270
pellets 386
pyrites 378, 388
Irrigation 17, 113, 192, 310, 316, 320, 359, 367

J

Jam
production 410
retail price 505
Jarrah 55, 61, 97, 323, 370, 371
Jelly crystals 415
Judges 103, 117, 247, 470
Judges' courts 117, 247, 249, 470
Judicature 117, 247
Judicial separations 249
Jury, juries 247
Justice—*see* Court, courts
Juvenile—*see also* Child; Children, children's
convictions in courts 251
employment 244, 402

K

Kangaroo, kangaroos 65, 193, 370
Paw (flower) .... vii, 60
Karri 55, 97, 323, 370, 371
Kimberley 17, 65, 86, 124, 323, 327, 351, 378, 379, 382, 386, 453
Research Station 193, 319, 367
Kindergartens 169, 172
King, Phillip P. 2
King's Park Board 195
Kwinana 114, 274, 278, 326, 337, 385, 386, 387, 398, 442, 446, 448
Kyanite 389

Page

L

Laboratories, State Government 189, 202
Labour—*see* Employment
Labour force
  classification 496
  definition 497
  survey 495, 496
Labour parties 10, 100, 101, 102, 104, 105, 109
Lakes 17, 29, 65, 96, 388
Lamb—*see* Mutton, lamb
Lambs—*see* Sheep, lambs
Land
  and buildings, factory 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
  Crown
    administration 305
    alienation of 305, 307, 521
    classification of 306
    grants 306
    leases and licences 306, 521
      agricultural 305
      mining 381
      pastoral 306, 307, 308, 309, 327
      perpetual 306
      reserves 306
      residential lots 306
    reservations 59, 305, 309
  occupation 307
  Settlement Schemes
    Government 309, 533
    Group 309, 359
    Peel, Thomas 3, 4
    Soldiers' 309
    War Service 308, 309, 353
  Tax 114, 265, 270
  tenure system 533
  utilisation 327
Lands and Surveys, Department of 305, 306, 307, 308, 309
Laterite 18, 27
Law 246
Lead, lead ores 23, 326, 378, 381, 386, 389, 427
Leases of Crown land—*see also* Land
  agricultural 305, 306
  mining 306, 381
  pastoral 306, 307, 308, 309, 327
  perpetual 306
  reserves 306
  residential lots 306
Leather 427
Leave provisions 482, 483
Lecturers, university 179
  Institute of Technology 175
Legal profession 246
Legal tender 285
Legislation
  during 1968
    Commonwealth 111
    State 111
  summary 533
Legislative
  Assembly 9, 98, 101, 104, 106
  Council 6, 9, 98, 101, 103, 104, 106, 110
Legislature
  Commonwealth 99, 109
  State 98, 101, 109
Lemons 335, 336, 348

Page

Leprosarium 206
Leprosy 202
Lettuce 347
Leucoxene 378, 384, 385, 519
Ley farming 326
Liberal and Country League 102
Liberal Party 11, 100, 101, 102, 104, 105, 109
Libraries 185
Library Board of Western Australia 185
Licences—*see also* Land
  broadcast listeners' 465, 467, 468
  broadcasting station 465
  building 279
  combined receiving 467, 468
  dog 279
  liquor 253, 266, 270
  motor
    drivers' and riders' 255, 270, 449
    vehicle 115, 255, 270, 279, 280, 449, 515
  radio 465, 467, 468
  revenue from 270, 279, 450, 452, 468
  taxi 267, 270
  television 465, 467, 468
  transport 459
Licensing Court 248
Lieutenant-Governors 99
Life
  expectation of 157
  insurance 292, 513
    Government pension schemes 282, 283
Lime and plaster factories 415
Limestone 18, 25, 378, 389
Linseed, linseed oil 343, 351
Liquor licences 253, 266, 270
Lithium 21, 389
Livestock—*see also specific types*
  carried on railways 445
  exports 424, 425, 426, 517
  imports 421, 422
  on rural holdings 323, 326, 327, 329, 352, 360, 362, 521
  slaughterings 333, 334, 358, 359, 363
  slaughter levy 263
Loan, loans
  bank 287, 513
  Building Society 295
  commercial 298
  Council, Australian 259
  expenditure
    local government 280, 282
    State Government 273, 512
  Fund, General 273, 512
  housing 113, 219, 222, 287, 295
  indebtedness
    local government 282
    State Government 259, 275, 512
  mortgage 297
  personal 298
  raisings 275
    local government 281
Local Courts 248
Local government 98, 114, 119
  areas—*see also map inside back cover* 120, 528, 535, 536, 537
  authorities, functions of 121
  finance 122, 279
  pension and superannuation schemes 282
  reserves 196

Page

Lockyer, Edmund 2
Locomotives 445
Long service leave 470, 483
Lotteries Commission 203, 244, 302
Lucerne 342, 343

M

Machinery and plant, factory 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
Machines, machinery
- agricultural 331, 434
- exports 424, 425, 426, 427
- imports 421, 422, 423
- in factories 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
- on rural holdings 331
- production 409

McNess Housing Trust 116, 219
Magistrates' Courts 248, 250, 253
Magnesite 378
Mails—*see* Posts, telegraphs, telephones
Main roads—*see* Road, roads
Maize 336
Malformations, congenital, deaths from 150, 153
Malting barley 341
Mammals 65
Mandarins 335, 336, 348
Manganese, manganese ore 323, 327, 378, 386, 389, 424, 425, 426, 427, 429, 519
Manufacturing—*see also* Factory, factories 323, 324, 392, 472, 486, 491, 492, 493, 494, 498, 524, 525
Manures—*see* Fertilisers, artificial
Maps in previous Year Books 534
Margins, wage 476
Marine
- fauna 64, 74, 81
- insurance 291

Marital status of population 129, 489, 490
Marketing Board
- Barley, Western Australian 342
- Dairy Products 359
- Egg, Western Australian 363
- Potato, Western Australian 345

Marriage, marriages 142, 156, 158, 510
- ages of bridegrooms and brides 158, 159
- dissolution of 161, 162
- duration of 162
- of minors 159
- rates 160, 510
- religious and civil 160

Marsupials.... 66
Masculinity 125, 126, 135, 154
Materials used in building, Wholesale Price Index of 505
Maternal deaths 150
Maternity allowances 234, 263
Matriculation 176
Mean population 138, 509
Means test for social service benefits 230
Meat—*see also specific meats*
- exports 357, 359, 361, 370, 424, 425, 426, 427, 429, 507, 516
- production 357, 358, 359, 363, 364
- retail prices 505

Page

Meckering earthquake 30, 31, 32
Medical benefits 238, 263, 294
Members of Parliament 98, 100, 103, 104, 105
Mental health
- institutions 206, 241, 262
- services 206, 207, 271

Metals and metal manufactures
- exports 426, 507
- imports 421, 422, 423
- production 409, 415

Meteorology 34, 533
Metropolitan
- area 131, 133, 136, 476, 478
- climate 47
- employment 326, 399
- factories 326, 399
- omnibus services 453, 454
- (Perth) Passenger Transport Trust 15, 271, 274, 453, 459
- population 133, 136, 326
- Region Improvement Tax 268, 270
- Region Town Planning Scheme 114
- retail prices 505
- Traffic Area 280, 449, 450, 452, 454, 460
- wage rates 476, 527
- Water Supply 310, 311
- Sewerage, and Drainage Board 114, 310, 321

Mica 389
Migration—*see also* Immigration 130, 131, 133, 134, 135, 509
Mileage
- coaxial cable 463
- omnibus routes 444, 454
- railways 437, 443, 444, 514
- road services 444, 454
- roads 449
- telegraph, telephone lines 463, 514

Milk
- free, for school children 241, 263
- imports 421, 422
- processing 326, 411
- production 323, 326, 334, 359, 360, 361
- retail prices 505

Mine Workers' Pension Fund, Coal 284
Mineral, minerals—*see also* Mining and quarrying
- beach sands 323, 378, 384
- carried on railways 445
- claims 115
- exploration, private 389
- expenditure 390
- exports 424, 425, 426, 427, 429, 519
- leases 306, 381
- production 323, 378, 523

Minimum wage rates 477, 479, 480
Mining and quarrying—*see also specific minerals*
- accidents in 486
- development of 7, 14, 273, 275, 377
- employment 379, 381, 383, 491, 492, 493, 494, 498
- production 323, 378
- royalties 270, 306
- tenures 306, 381
- value 324, 333, 334, 524

Ministers of the Crown 98, 101, 102, 106

Page

Ministry, Ministries 102
Mint, Royal 380
Mitchell, James 9, 10, 102
Molybdenum 18, 368, 389
Monazite 29, 378, 384, 385
Mortality—*see* Death, deaths
Mortgage loans 298
Motor, motors
  omnibuses—*see* Buses
  used in factories 396, 404, 407, 408, 409, 410, 411, 412, 413, 414
  vehicle, vehicles
    accidents 454
    at dwellings 215
    drivers' and riders' licences 255, 267, 270, 449
    imports 421, 422, 423
    insurance 292, 293
      third party.... 115, 267, 270, 293
    licences 255, 267, 270, 279, 280, 449, 515
    parking facilities 253, 450
    registrations 267, 449, 515
    retail sales 433
    usage 454
Mountain ranges—*see also map inside back cover* 18, 34
Mules operation 88
Municipal councils 120
Municipalities—*see also map inside back cover* 120, 134, 279, 281, 282, 535
Murder 250, 252
Museum, museums 187, 278
Mutton, lamb
  exports 354, 424, 425, 427, 429, 516
  retail prices 505
  slaughterings 358
Myxomatosis 88, 193, 369

N

National
  Debt
    Commission 259, 275
    Sinking Fund 259, 275
  Fitness Council 196
  Health services 201, 237, 263
  Parks Board of Western Australia.... 59, 278
  Safety Council of Western Australia 255, 257
  Welfare Fund 229, 237, 240, 262
Nationalist Party 11, 102
Nationality of population 128
Native Welfare, Department of—*see* Aboriginal, Aborigines
Natural
  gas 19, 23, 378, 390
  increase of population 135, 138, 145, 156, 509, 510
  regions 95
Nectarines 335, 336, 349
Neglected children 243
Net production 324, 392, 396, 397, 398, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 524, 525
  definition of 324, 392
  manufacturing 324, 392, 395, 396, 397, 398, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 524, 525
  primary industry 324, 332, 524

Page

New dwellings completed 225, 228, 526
Nickel 14, 16, 22, 30, 115, 378, 387, 389
Niobium 389
Note issue 285
Notifiable diseases 202
Noxious weeds 268, 270, 278, 368
Nullarbor Plain 17, 18, 27, 54, 97, 352
Nuptial confinements 144
Nurseries 350
Nursing home
  benefits 237
  grants 209

O

Oats 326, 333, 334, 335, 336, 341, 343, 351, 424, 425, 427, 429, 505, 522
Observatories 189
Occupational status of population 129, 488, 489, 490, 491, 496
Occupations of the work force 495
Occupied dwellings 210, 216, 217, 218
Ochre 378
Offences, penal 249
Office of Titles 300
Official publications, list of 559
Oil, oils—*see also* Petrol, petroleum, petroleum products ; Whale oil
  carried on railways 445
  crude 378, 387, 390
  discovery 14, 16, 23, 25, 26, 30, 377, 387, 390
  engines in factories 404
  excise 431
  exploration 390
  exports 424, 425, 426, 427, 429
  imports 421, 422, 423
  linseed 351
  refining 324, 396
  sandalwood 373
  search 23, 25, 306, 390
  ships' stores 429
  used in factories 405
Olives 335, 336
Omnibuses—*see* Buses
Onion, onions
  area 334, 345
  production 334, 335, 345
  retail price 505
Oranges 334, 335, 336, 348
Orchards—*see also specific fruits* 318, 333, 347, 351
Orchids 532
Ord River 275, 311, 319, 321, 352, 367
Ores—*see also specific ores* 21, 22, 26, 27, 28, 323, 326, 327, 377, 378, 379, 424, 425, 426, 427, 429, 443, 445, 519
Orphanages 245
Output, factory, value of 392, 397, 398, 405, 407, 408, 409, 410, 411, 412, 413, 414, 525
Overseas
  air services 457
  cargo, tonnage of 439
  representation 118
  shipping 438

Page

Overseas—*continued*
Telecommunications Commission.... 464
trade—*see also* Exports; Import, imports 417, 418, 419, 420, 421, 423, 424, 425, 427, 428, 429, 520
Overtime 482
Oysters 78

P

Paint, paints 415, 422, 424, 425
Palladium 387
Paper, paper products
exports 424, 425
factories 398, 399, 401
imports 421
Parents and Citizens' Associations 169
Parks and reserves 59, 194, 279
Parliament, Parliaments
Commonwealth 99, 109, 111
State 98, 101, 109, 111
Parliamentary
officers 107
procedure 106
standing orders 106
Superannuation Fund 115, 283
Parole Board 256
Parsnips 346
Passengers carried
ferries 456
omnibuses 454
railways 444
railways road services 444, 454
Pastoral—*see also* Cattle; Grazing; Sheep, lambs; Wool 191, 192, 307, 309, 351, 365, 524
Appraisement Board 305
areas, definition of 351
industry 323, 329, 333, 351, 524
leases 306, 307, 308, 309, 327
Pasture 191, 192, 318, 327, 334, 342, 351, 359, 367
seed 343
Paterson Plan 359
Patients in hospitals 205, 207
Pay-roll Tax 263, 481, 497
Peaches 335, 336, 349, 505
Pearls, pearl-shell.... .... 10, 77, 78, 376, 377
culture 327, 376
exports 377, 518
production 327, 376, 377
Pears 335, 336, 348, 505
Peas 326, 335, 336, 342, 343, 346
Peel, Thomas 3, 4
Penal offences 249
Pensions, pensioners
age 229, 242, 263
invalid 230, 242, 263
medical service 239, 263
reciprocal arrangements with other countries 235
schemes, superannuation 282
service 204, 229, 236, 239, 264
war 204, 229, 235, 264
widows' 229, 231, 242, 263, 283, 284
Personal loans 298

Page

Perth
City Council 119, 450
foundation of 3
metropolitan area 131, 133, 136
Statistical Division 131, 134, 135, 137, 148, 158, 227, 326, 398, 399, 407, 408, 409, 410, 411, 412, 453, 535
Stock Exchange 301
Town Trust 119
Pesticides, effect of 91
Petrol, petroleum, petroleum products—*see also* Oil, oils
customs 431
excise 431
exploration 390
finance 391
wells and footage drilled 391
exports 424, 425, 426, 427, 429
imports 421, 422, 423
leases, licences 306
Pharmaceutical benefits 229, 239, 263, 278
Phillip, Arthur 2
Phosphate, rock—*see also* Fertilisers, artificial 351, 389
Physical features 16, 95
Pickles, sauces 410, 415
Pig-iron 327, 373, 386, 415, 518
Pigs.... 329, 334, 361, 362, 363, 410, 445, 521
Pines 275, 372
Plant and machinery, factory 396, 397, 398, 406, 407, 408, 409, 410, 411, 412, 413, 414
Plantations 318, 349, 372
Plaster 407, 415
Platinum 387
Plums 335, 336, 349
Plywood 373, 424, 425, 426
Pneumonia, deaths from 150, 153
Poisonous plants 56
Police 115, 254, 271, 280, 449, 450, 452
and Citizens' Youth Clubs 255
Policies, life insurance 292, 513
Poliomyelitis 202
Political parties 100, 101, 102
Australian Labor Party 100, 104, 105, 109
Country Party 100, 104, 105, 109
Labour 10, 100, 101, 102, 104, 105, 109
Liberal and Country League 102
Liberal Party 100, 101, 102, 104, 105, 109
Nationalist Party 102
Pollard 409, 415
Pome fruits—*see* Apple, apples; Pears
Population 5, 8, 13, 124, 509
Aboriginal 124, 125, 139
age distribution 127
birthplace 128
censuses—*see also* Censuses of population 124, 125, 126, 157, 487, 495
density 124, 131, 136
estimates 137, 509
geographical distribution 131, 535
increase 124, 130, 133, 135, 509, 510
industry of 129, 491, 492, 494, 498
intercensal increases 130, 133, 135
interstate comparison 125, 130, 137, 139, 141
marital status 129, 489, 490
masculinity 125, 126, 135
mean 138, 509
metropolitan 133, 136

Page

Population—*continued*
migratory 130, 131, 133, 134, 135, 509, 535
nationality 128
north of 26°S. latitude 136
occupational status of 129, 488, 489, 490, 491, 496
occupations of 129, 495
Perth Statistical Division 131, 134, 135, 137, 326, 509, 535
rates of increase 124, 130, 133, 135, 509, 510
religion 129
reproduction 147
rural 131, 133
rural holdings 328
South-West Land Division 136
Statistical Divisions.... 131, 134, 137, 535
urban 131, 133
urban centres 131, 133
work force 487
Pork
exports 361, 424, 425, 429, 516
retail prices 505
Ports 385, 430, 437, 438
administration 441
cargo tonnages 438, 439, 440
shipping 437, 438
trade 430, 437, 438
Postmaster-General's Department 461, 464, 465
Posts, telegraphs, telephones 461, 514
Potash 17, 29, 387
Potato, potatoes
area 318, 334, 345
exports 426, 429, 517
Marketing Board, Western Australian 345
production 326, 334, 335, 345
retail price 505
Poultry 324, 326, 329, 333, 334, 363, 524
Power, electric—*see also* Electricity; Hydro-electric power
generation and distribution 404, 405, 412, 415, 512, 525
used in factories 399, 404, 405
Prawns 79, 193, 327, 333, 374, 375
Premier, Premiers 9, 102
Premiums, insurance 292, 513
Pre-school education 172
Price indexes—*see* Index numbers, export price, retail price, wholesale price
Prices, retail 505
Primary
producers, assistance to
financial 286, 338, 344, 359, 364
technical.... .... 359, 365
production 323, 327, 334, 486, 491, 492, 494, 521, 522, 523, 524
schools—*see also* Education 163, 166, 168, 169, 172
Prime Minister of Australia 259
Prisons, prisoners 255
Private
children 244
dwellings 210, 216
finance 285, 513
hospitals 206
omnibus services 453, 454
railways 443, 446, 514, 533

Page

Privy Council 117, 247
Probate duties 265, 270
Probation and parole service 256
Production, value of
manufacturing 324, 397, 398, 405, 406, 407, 408, 409, 410, 411, 524, 525
primary 324, 332, 334
Professors, University 179
Proportional representation 100
Provident Account 282
Public
debt 259, 275, 512
examinations—*see* Education
finance 259, 511
child welfare 243
customs and excise 263, 431
education 181, 184, 271, 272
hospitals.... .... 205, 278
infant health 203
posts, telegraphs and telephones 462, 514
social service benefits 230, 263
transport services 269, 271, 273, 274, 443, 444, 512, 514
vehicle licences 270, 279, 280, 450
health 122, 201, 271
holidays 483
hospitals 204, 273, 274, 278
instruction—*see* Education
safety 257
transport services 443, 444, 453, 454, 512, 514
Trust Office 300
Trustee 115
Common Fund 278
Publications, list of 559
Pumpkins 346
Pyrites—*see also* Iron 327, 333, 378, 388

Q

Quarantine 201
Quarrying—*see* Mining and quarrying
Quartzite 389
Quicklime 407, 415

R

Rabbits 67, 193, 368, 370
Racing, State revenue from 270
Radio broadcasting services 170, 465
Rail standardisation 443, 447
Railways—*see also map inside back cover* 10, 115, 274, 278, 385, 443, 459, 514, 533
iron-ore 443, 446
rolling stock 445
Rainfall—*see also map inside back cover* 35, 47, 51, 96, 136, 319, 529
Raisins 326, 334, 350
Rates
local government 122, 279, 280
of exchange 285
Readers, University 179
Recreation 196
Redemptions, Loan Raisings and 275
Refining
gold 380
oil 324, 396

Page

Refrigerating machines and appliances, imports of 421, 422
Regions, natural 95
Registration Office, Companies 301
Rehabilitation Service, Commonwealth 231, 263
Relief payments, State 241
Religion of population 129
Religious and civil marriages 160
Rent, rents of dwellings 502
Repatriation services 204, 229, 235
Representation
overseas and interstate 119
Parliamentary 98, 100, 101, 103, 104, 105
Vice-Regal 99
Representatives, House of 100, 109
Reproduction rates 147
Reptiles 72
Research
agricultural 189, 190, 319, 338, 365
financial assistance for 183
Organization, Commonwealth Scientific and Industrial 191, 319, 367, 375
Reserves of land 59, 115, 385
Reservoirs—*see also* Water 310, 311
Retail
Establishments
Census of 432, 497
Survey of 432
price, prices 505
index numbers 502, 504, 526
sales, value of 433
instalment credit for 296, 297, 299
trade, employment in 498
Rice 319, 505
Richter scale 30
Rivers 17, 318, 321, 352
Road, roads—*see also map inside back cover* 448, 534
beef cattle 278
boards 120
Commonwealth aid 262, 278, 452
districts—*see also* Shires 120
finance 262, 278, 279, 449, 452
main 448, 452, 534
maintenance contribution 267, 270
safety 257
traffic
accidents 454
control 255, 449
transport 444, 453, 459
employment 444, 454, 492, 498
vehicles 444, 450, 453, 454, 459, 515
Trust Fund, Central 278, 279
Rock lobsters (crayfish) 193, 324, 326
exports 373, 424, 425, 427, 429, 518
production 326, 374, 375
species of 64, 77, 79, 374
Rock phosphate—*see* Phosphate, rock
Rocks 18, 19
Rolling stock, railways 445
Rooms, number of in dwellings 213
Rottnest Island Board 196
Route mileage—*see* Mileage
Royal Commission, Commissions 115, 178, 368
Flying Doctor Service 170, 457, 459, 465
Mint 380

Page

Rubber, rubber goods
exports 424, 425, 426
factories 398
Rubidium 389
Rule of law 246
Rural
and Industries Bank of Western Australia 115, 278, 286, 287, 289, 290
holdings 327, 328, 329, 334, 338, 351, 353, 358, 360, 362
industry 323, 492, 521
population 131, 133
seasonal calendar 335
Rutile 29, 378, 384, 385
Rye 335, 342, 343

S

Safflower 319
Salaries and wages—*see also* Basic wage, wages; Total wage; Equal pay 476
factories 392, 397, 398, 403, 407, 408, 409, 410, 412, 413, 414, 425
hospitals 205
infant health services 203
minimum rates 477, 479, 480
Postmaster-General's Department.... 462
Sales Tax 263
Salt 17, 29, 368, 388
Bush 29
lakes 17, 29, 96, 388
Sandalwood 372
Sandstone 21, 23, 25, 26, 378, 389
Sauce—*see* Pickles, sauces
Savings banks—*see* Bank, banks
Sawmills, sawmilling 326, 373, 398, 399, 401, 411
employment 401, 402, 412
salaries and wages 398, 403, 412
Scale fish 333, 375
Scholarships, bursaries 163, 178, 181, 182
Schools—*see* Education
Scientific institutions 189, 319, 365
Seasonal calendar, rural.... 335
Secession referendum 12
Secondary
industry 392
production—*see* Factory, factories; Manufacturing
schools—*see* Education
Sedimentary basins 19, 23
Seismicity of Western Australia 30
Senate
Commonwealth Parliament 100, 109
University of Western Australia 177
Separations, judicial 249
Sequestration orders 299
Service, services
advisory, agricultural 367
broadcasting 169, 170, 465
dental, school 204
Flying Doctor, Royal 170, 457, 459, 465
health
infant 203
national 201, 237, 263
hospital 204
library 186

Page

Service, services—*continued*
medical 201
pensioner 239, 263
school 203
pensions 204, 229, 236, 264
post, telegraph and telephone 461, 514
radiocommunication 464
rehabilitation, Commonwealth 231, 263
repatriation 204, 229, 235
reservoirs 310, 311
social 230, 241, 263, 264
soil conservation 366, 368
statistical iv
television 169, 465
transport 437, 453, 458, 514
veterinary 365
war, land settlement 308, 309, 353
Settlement—*see* Land
Sewerage schemes 321
Sheep, lambs
breeds 354
carried on railways 445
exports 424, 425, 426, 517
numbers 323, 326, 327, 334, 352, 363, 521
research 190, 368
shorn 354
size of flocks 330, 338, 353
skins exported 424, 425, 426, 427, 429
slaughtered 334, 358
Sheltered
employment 208
workshops grant 208
Shipping 438, 491, 498, 514
cargo 438
Ships' stores 429, 520
Shires—*see also map inside back cover*.... 120, 536
Shoes—*see* Boots and shoes
Sickness benefits 229, 232, 263, 294
Sillimanite 389
Silver, silver-lead ores 327, 378, 381, 386, 519
bullion 424, 425, 427
Sinking funds 259, 262, 276, 277, 282, 511, 512
Skins and hides 370, 424, 425, 426, 427, 429, 507, 518
Slaughterings, livestock 333, 334, 358, 359, 363
Sleepers, railway 373, 411, 415, 424, 425, 426, 427, 429
Slippers 415
Snakes 72
Snow 48
Soap, soap substitutes
imports 421, 422
production 415
retail price 505
Social services 230, 241, 263, 264
Softwoods—*see* Pines
Soil, soils 16, 28, 54, 191, 306, 319, 366, 368
conservation 366, 368, 370
types 28, 54, 351
Soldiers' Settlement Scheme 309
Sorghum 342
South-West Land Division 136, 476
Spinifex 28, 54, 56, 96
Spirits
beverage—*see* Alcoholic beverages
for industrial purposes 431
Spodumene 389
Sporting organisations 196

Page

Stamp duties 116, 265, 270
Standardised death rates 149
Standing Orders, Parliamentary 106
State
basic wage 476, 478, 484, 527
batteries 190, 381
Cabinet 99, 101, 102
Court of Arbitration 118, 470, 483
education system 163
Electricity Commission 274, 278, 399, 412, 413
Government Insurance Office 273, 291
Housing Commission 116, 218, 274, 278, 280
Library of Western Australia 185
Licensing Court 248
relief payments 241
taxation 265, 279
States, Australian.... 99, 130, 137, 139, 141, 218, 228, 334, 363, 397, 400, 433, 434, 446, 447, 481, 483
Statistical districts 131
Statistical Divisions—*see also map inside back cover* 131, 134, 137, 351, 536
areas of 131, 137, 535
components of 131, 536
dwellings in 216, 227
factories in 398, 399
industries in 326
population in 131, 134, 137, 535
roads in 449
Statistical summary from 1829.... 508
Steam engines in factories 404
Steel 324, 385, 415, 424, 426, 427, 448, 518
Stevedoring
employment 498
Industry Charge 263
Stillbirths 143, 144, 154
Stirling, James 2, 5
Stock Exchange, Perth 301
Stone 18, 19, 378, 389
fruits—*see also specific fruits* 326, 335, 336, 347, 349, 351
quarry production 378, 389
Storms 35, 44, 48
Street lighting 281
Student children 163, 164, 166, 229
Students—*see* Education
Subterranean clover 191, 342, 343, 353, 359, 368
Succession duty 265, 270
Sugar
cane 319
retail price 505
Suicides 150, 151
Sulphur 388
Sulphuric acid 388, 415
Sultanas 326, 334, 350
Summary Relief Court 242, 246, 248
Sunshine, periods of 47
Superannuation schemes 282
contributors 283, 284
Fund, Parliamentary 115, 284
Superphosphate—*see* Fertilisers, artificial
Supreme Court
Federal 117, 247
of Western Australia 118, 246, 247
Swans 71
Syphilis 203

Page

T

Talc 378
Tallow 415, 424, 425, 427, 507
Tannin 372, 373
Tannin bark—*see also* Bark 372, 373
Tantalum ores 21, 327, 378, 389
Tariff
  Board 417
  customs 417, 430, 431
Taxation 260, 263, 279, 327, 337, 353, 511
Taxi-cars 267, 456, 460
  Control Board 116, 267, 460
Tea 423, 505
Teachers—*see* Education
Technical education—*see* Education
Telecommunications Commission, Overseas 464
Telegraph, telegraphy—*see* Posts, telegraphs, telephones
Television 169, 465
Temperature 40, 47, 51
Tetanus 202
Textile, textiles
  factories 398, 399
  imports 421, 422, 423
Third Party Claims Tribunal 247, 249
Third Party (Motor Vehicle) Insurance.... 270, 293
Thorium 289
Thunderstorms 44, 48
Tiles 408, 415
Timber—*see also* Forest, forests; Hardwoods; Jarrah; Karri; Pines; Plywood; Sandalwood; Sawmills, sawmilling; Tuart; Wandoo
  carried on railways 443, 445
  exports 370, 372, 424, 425, 426, 427, 429, 518
  production 373, 411, 412, 415, 525
  railways 443, 534
  reserves 370
  species 55, 97, 370, 371, 372
Tin, tin ore 21, 327, 378, 388, 389, 424, 425, 426, 427, 519
Titanium oxide 326
Titles, Office of 300
Tobacco
  customs and excise 431
  imports 421, 422
Tomatoes 318, 326, 335, 336, 345
Topography 16, 34, 95, 306
Tornadoes 48
Total wage 476, 477
Totalisator Agency Board 266, 267, 304
Tourist
  Bureau 119
  Development Authority 275
  Fund 278
Town Planning
  Board 224
  Commissioner 224
Towns—*see also map inside back cover* 119, 131, 536
Trachoma 202
Tractors—*see also* Agricultural.... 328, 331, 332, 395, 421, 422, 423, 424, 425, 426, 434
Trade
  classification of commodities 417
  constitutional provisions and legislation 417
Trade—*continued*
  historical summary of 534
  interstate and overseas 417, 418, 419, 420, 421, 423, 424, 425, 428, 429, 430, 520
  retail, wholesale, employment in 498
  unions 471
Trades and Labour Council of Western Australia 476, 484
Traffic
  accidents, road 454
  Act 116, 250, 251, 252, 253, 280, 449, 450, 452, 453
  Area, Metropolitan 280, 449, 450, 452, 454, 460
  control, road 255, 449
  fees 270, 279, 280, 450
  offences 250, 251
  passenger ferry 456
  rail 444, 446, 514
  road 255, 444, 448, 459
Training apprentices 473
Transport—*see also* Air transport; Buses; Employment; Ferries; Motor, motors; Railways; Road, roads; Shipping; Tramways; Trolley-buses 437, 491, 492, 498, 512, 514
  Advisory Council 458, 459
  Board, Eastern Goldfields 453, 454
  Commissioner of 267, 459, 460
  co-ordination 458
  Director General of 458, 459
  services, municipal 453, 454
  Trust, Metropolitan (Perth) Passenger 15, 271, 274, 453, 459
Trapping 324, 333, 334, 370, 524
Tree species 55, 97, 370, 371, 372
Tremors 31
Trolley-buses 453, 454
Tropical
  agriculture 318, 326, 367
  cyclones 48
Trust funds 116, 263, 268, 277, 279
Trust Office, Public 300
Tuart—*see also* Hardwoods 55, 370, 371
Tuberculosis
  allowances—*see also* War and service pensions 203, 229, 241, 263
  campaign 203, 241, 263
  cases notified 202
  deaths from 149
  hospital 206
Tungsten ores 389
Turnips 346
Typhoid fever 202

U

Unemployment 496, 499
  according to age 501
  duration of 500
  rates 496, 501
  relief 229, 232, 242, 243, 263, 500
Unincorporated area 120
Unions 471, 476
United Kingdom
  representation in 119
  trade with 419, 420, 423, 427

Page

Universities
- Commission, Australian 182
- financial assistance to 180, 181, 182, 184, 262, 271, 272

University
- degrees 177, 179
- of Western Australia—*see* Education
- principal benefactions 534

Unoccupied dwellings 210, 212, 216, 218
Uranium 389
Urban
- centres 131, 133
- population 131, 133

V

Valuation for rating, local government 122
Value of production
- manufacturing 324, 397, 398, 405, 406, 407, 408, 409, 410, 411, 524, 525
- primary 324, 332, 334, 524

Vanadium 389
Veal—*see* Beef
Vegetables—*see also specific vegetables*
- fresh
  - exports 345, 424, 425, 426, 429, 517
  - imports 345
  - production 318, 326, 345
  - used in factories 410

Vegetation 28, 52, 96
- provinces 53, 534

Vehicles, motor—*see* Motor, motors
Veneers, plywood—*see* Plywood
Venereal diseases 202
Vermiculite 389
Vermin 68, 71, 268, 270, 278, 368
- Boards 279
- bonus, bounty 71, 81, 279
- taxation 268, 270

Vetches 342
Vice-Regal representation 99
Vine fruits 326, 333, 350
- dried—*see also* Currants; Raisins; Sultanas 326, 350
- grapes
  - area 350
  - production 326, 350

Vinegar 410, 415
Vineyards 329, 334, 350
Vital statistics 124, 142, 510
Viticultural research 366
Vlaming, Willem de 56
Vocational guidance 169, 170
Voting—*see* Electoral provisions

W

Wage and salary earners, number of 488, 489, 490, 491, 526
Wages—*see* Salaries and wages
Wandoo—*see also* Hardwoods 55, 97, 370, 371
War
- pensions 204, 229, 235, 264
- Service
  - Homes 221, 278
  - Land Settlement
    - Board 327
    - Scheme 308, 309, 353

Page

War and service pensions 204, 229, 235, 264
Water
- artesian 19, 23, 26, 96, 311, 312, 316
- Boards 279, 281, 282, 310, 315
- conservation 310
- resources, investigation and measurement 320
- Supply 8, 96, 269, 271, 273, 274, 279, 307, 310
  - Commonwealth grants for 262, 312, 319
  - Metropolitan 310, 311
  - Scheme, schemes
    - Comprehensive 312, 313
    - Goldfields 310, 312
    - other 314, 315
  - Sewerage, and Drainage Board, Metropolitan 310, 321
- underground 192, 311, 312, 316, 320, 321

Waterspouts 50
Weather 34
Webworm moth 89
Weekly earnings, average 481, 482
Weirs—*see* Reservoirs; Water
Wells, private petroleum exploration 391
Whale oil 324, 376
Whales, whaling 65, 68, 324, 326, 376
- catch 376
- Commission, International.... 376

Wheat
- area 323, 330, 334, 337, 340, 343, 522
- Board, Australian 337, 338
- bulk handling of 337
- carried on railways 445
- development of production 534
- exports 10, 336, 424, 425, 427, 429, 515
- prices, export 523
- production 334, 335, 336, 340, 522
- research 190, 338, 366
- Stabilisation Plan 117, 337
- Tax 337, 338
- used in milling 409, 410
- varieties 340
- yield per acre 337, 522

Whirlwinds 48
Wholesale
- hire purchase 297
- Price Index 505
- trade 435, 498

Widows' pensions.... 229, 231, 242, 263, 283, 284
Wildflowers 56, 194
Wind 34, 44, 47, 48, 50
Wine—*see* Alcoholic beverages
Wineries 326
Wireless communication.... 464
Wood, wood products—*see also* Firewood; Sandalwood; Timber
- fuel used in factories 405
- imports 421, 422
- manufacture 411, 412, 415

Wool
- auctions 355
- carried on railways 445
- exports 354, 424, 425, 426, 427, 429, 516
- prices, export 507, 523

	Page
Wool—*continued*	
production	326, 334, 335, 339, 354, 415, 521
shearing	335
Tax	263
value of	333, 334, 521, 523
Work force—*see also* Employment	
industry of	491, 493, 494
occupations of	495
survey—*see* Labour force, survey	
Workers' Compensation	278, 292, 300, 484, 485
Board	300, 484, 485
Workers' Homes Board	218

X

	Page
Xenotime	29, 378, 384, 385

Y

	Page
Yarn, yarns	421, 422, 423
Yttrium	389

Z

	Page
Zinc, zinc ores	368, 378, 381, 386, 388, 427
Zircon	29, 333, 378, 384, 385
Zoological Gardens Board	196

STATISTICAL PUBLICATIONS

Issued by the Deputy Commonwealth Statistician and Government Statistician,
1-3 St George's Terrace, Perth

PRINTED PUBLICATIONS

Title of publication	Latest issue at 31 May 1970	Published	Price	
			Excluding postage	Including postage (a)
			$	$
WESTERN AUSTRALIAN YEAR BOOK	No. 8, 1969	June 1969	1.00	1.41
WESTERN AUSTRALIAN POCKET YEAR BOOK (b)	No. 51, 1969	Sept. 1969	0.20	0.25
QUARTERLY STATISTICAL ABSTRACT	Mar. 1970	Mar. 1970	0.20	0.29
STATISTICAL REGISTER OF WESTERN AUSTRALIA (Annual):				
Part I—Population and Vital Statistics (b)	1966-67 and 1967-68	Nov. 1969	0.40	0.57
Parts II and III—Finance Statistics Comprising: Part II—Public Finance Part III—Private Finance	1967-68	Aug. 1969	0.40	0.49
Part IV—Trade, Transport and Communication	1962-63 to 1964-65	Aug. 1967	1.40	1.61
Part V—Land Settlement, Agriculture, Livestock and Meteorological Statistics (b)	1967-68	Jan. 1970	1.10	1.23
Part VI—Factory Statistics (b)	1967-68	Jan. 1970	0.90	0.99
Part VII—Mineral Statistics and Water Conservation	1967-68	Aug. 1969	0.20	0.25
Parts VIII, IX and X—Social Statistics Comprising: Part VIII—Law and Crime Part IX—Hospitals and Charitable Institutions Part X—Education	1966-67 and 1967-68	Jan. 1970	0.30	0.35
Part XI—Local Government (b)	1966-67	Mar. 1969	0.50	0.55
Part XII—Retail Prices, Wages, Employment and Miscellaneous (b)	1967-68	Jan. 1970	0.60	0.69
Statistical Summary from 1829	1829-1968	Sept. 1969	0.20	0.25
ABSTRACT OF STATISTICS OF LOCAL GOVERNMENT AREAS (Annual) (b)	1969	Oct. 1969	0.50	0.63

(a) Within Australia and to Christmas Island, Cocos Island, Lord Howe Island, Norfolk Island, Nauru and Papua-New Guinea.
(b) Includes statistics for individual local government areas.

MIMEOGRAPHED PUBLICATIONS

(Available free of charge on application)

Subject	Frequency of issue	Latest issue at 31 May 1970	Published
ACCIDENTS—			
Industrial Accidents	Annually	1968-69	Feb. 1970
Road Traffic Accidents Involving Casualties	Quarterly	Dec. qr 1969	Apr. 1970
Road Traffic Accidents Involving Casualties (a)	Annually	1969	May 1970
BUILDING—			
Building Operations (a)	Quarterly	Dec. qr 1969	Apr. 1970
Building Permits and Approvals (a)	Monthly	Apr. 1970	May 1970
Number of New Houses and Flats (preliminary estimates)	Quarterly	Mar. qr 1970	Apr. 1970
EMPLOYMENT—			
Wage and Salary Earners in Civilian Employment	Annually	June 1966 to June 1969	Mar. 1970
FINANCE—			
Fire, Marine and General Insurance Statistics	Annually	1968-69	Feb. 1970
Local Government Finance Statistics	Annually	1967-68	Sept. 1969
Permanent Building Societies	Monthly	Mar. 1970	May 1970
MOTOR VEHICLES—			
Motor Vehicle Registrations	Monthly	Apr. 1970	May 1970
Motor Vehicle Registrations (a)	Annually	1968	June 1969
POPULATION AND VITAL STATISTICS—			
Divorce	Annually	1969	May 1970
Intercensal Changes in Population (a)	Irregular	1961-1966	June 1968
Population and Occupied Dwellings: Censuses, 1911 to 1966 (a)	Irregular	1911 to 1966	Feb. 1968
Population, Dwellings and Vital Statistics (Local Government Areas and Statistical Divisions) (a)	Annually	1966-1969	Feb. 1970
Projections of the Population	Irregular	1967 to 1976	Feb. 1969
Quarterly Summary of Population and Vital Statistics	Quarterly	Sept. qr 1969	Apr. 1970

continued overleaf

STATISTICAL PUBLICATIONS—*continued*

MIMEOGRAPHED PUBLICATIONS—*continued*

Subject	Frequency of issue	Latest issue at 31 May 1970	Published
PRIMARY PRODUCTION—			
Agricultural and Pastoral Statistics	Annually	1968-69	Mar. 1970
Apples and Pears in Cool Stores (February to November)	Monthly	Apr. 1970	May 1970
Artificial Fertiliser Used on Rural Holdings (*a*)	Annually	1968-69	Nov. 1969
Bee Keeping Statistics	Annually	1968-69	Dec. 1969
Catch of Fish and Crustaceans	Monthly	Nov. 1969	May 1970
Cattle and Pigs (*a*)	Annually	1969	Oct. 1969
Chicks Hatched and Poultry Slaughtered	Monthly	Mar. 1970	May 1970
Ewe Matings for Lambing	Annually	1969	May 1970
Fisheries	Annually	1968-69	Feb. 1970
Fruit (*a*)	Annually	1968-69	Feb. 1970
Grain and Seed Harvesters on Rural Holdings	Triennially	1967	Feb. 1969
Grain Crops and Cereal Varieties (*a*)	Annually	1968-69	Nov. 1969
Hay, Green Feed and Silage (*a*)	Annually	1968-69	Nov. 1969
Irrigation (*a*)	Annually	1968-69	Dec. 1969
Livestock and Wool Clip (preliminary estimates)	Annually	1968-69	July 1969
Livestock Slaughtered and Meat Produced	Annually	1968-69	Dec. 1969
Machinery on Rural Holdings (*a*)	Annually	1969	Nov. 1969
Mineral Exploration	Annually	1968	May 1970
Pasture Seed (*a*)	Annually	1968-69	Nov. 1969
Rock Lobsters Held in Cold Stores and Exported	Monthly	Apr. 1970	May 1970
Rural Census: Principal Statistics (preliminary)	Annually	1969	Sept. 1969
Rural Land Utilisation (*a*)	Annually	1968-69	Nov. 1969
Sheep, Lambing and Wool Clip (*a*)	Annually	1968-69	Oct. 1969
Tractors on Rural Holdings (*a*)	Triennially	1969	Mar. 1970
Value of Primary Production (preliminary statement)	Annually	1968-69	Apr. 1970
Vegetables (*a*)	Annually	1968-69	Jan. 1970
Wheat Crop Forecast	Annually	1969-70	Nov. 1969
Wheat for Grain (*a*)	Annually	1968-69	Sept. 1969
SECONDARY PRODUCTION—			
Factory Statistics (preliminary)	Annually	1967-68	Feb. 1969
Factory Statistics (general summary)	Annually	1967-68	July 1969
TRADE (EXTERNAL)—			
External Trade (Overseas and Interstate)	Annually	1968-69	Feb. 1970
Interstate Trade	Annually	1968-69	Nov. 1969
Quarterly Summary of Overseas Trade Statistics	Quarterly	Dec. 1969	Apr. 1970
TRADE (INTERNAL)—			
New Agricultural Machinery and Tractor Statistics (Deliveries and Sales)	Quarterly	Sept. qr 1969	Mar. 1970
Wholesale Sales and Stocks of Wine and Brandy	Annually	1967-68 and 1968-69	Nov. 1969
GENERAL—			
Indicators of Business Activity	Monthly	May 1970	May 1970
Monthly Statistical Summary	Monthly	May 1970	May 1970
Western Australia in relation to Australia	Annually	1968-69	July 1969

(*a*) Includes statistics for individual local government areas.

5074/8/69—6250

WESTERN AUSTRALIA

SHOWING LOCAL GOVERNMENT AREAS
AND STATISTICAL DIVISIONS
AS AT 31 DECEMBER 1967

Scale: 1 inch to 75 miles

Miles 50 40 30 20 10 0 50 100 150 200 Miles

LOCAL GOVERNMENT AREAS
CITIES — CITY OF PERTH
INCORPORATED TOWNS — ALBANY (T)
SHIRES — ALBANY
STATISTICAL DIVISIONS — KIMBERLEY
PRINCIPAL ROADS
RAILWAYS — 3'-6" STD GAUGE (4'-8½")
PRINCIPAL AIR ROUTES
MEAN ANNUAL RAINFALL (inches) — 10 10

INSET

Scale: 1 inch to 8 miles

Miles 0 8 Miles

PRINCIPAL ROADS
RAILWAYS — 3'-6" STD GAUGE (4'-8½")

SHIRE OF WANNEROO
SHIRE OF SWAN - GUILDFORD
PERTH
SHIRE OF PERTH
CITY OF PERTH
SHIRE OF MUNDARING
SHIRE OF BELMONT
SHIRE OF KALAMUNDA
STATISTICAL
TOWN OF VICTORIA PARK
TOWN OF MELVILLE
SHIRE OF GOSNELLS
DIVISION
SHIRE OF COCKBURN
SHIRE OF ARMADALE - KELMSCOTT
SHIRE OF KWINANA
SHIRE OF ROCKINGHAM
SHIRE OF SERPENTINE - JARRAHDALE

1 SHIRE OF BAYSWATER
2 SHIRE OF BASSENDEAN
3 CITY OF SUBIACO
4 CITY OF NEDLANDS
5 TOWN OF CLAREMONT
6 TOWN OF COTTESLOE
7 SHIRE OF PEPPERMINT GROVE
8 TOWN OF MOSMAN PARK
9 TOWN OF EAST FREMANTLE
10 CITY OF FREMANTLE
11 CITY OF SOUTH PERTH
12 TOWN OF MIDLAND

ENLARGEMENT

Scale: 1 inch to 30 miles

Miles 50 40 30 20 10 0 50 Miles

PRINCIPAL ROADS
RAILWAYS — 3'-6" STD GAUGE (4'-8½")

Prepared by the Mapping Branch, Surveyor General's Division, Department of Lands and Surveys, Perth, Western Australia

INDIAN OCEAN
SOUTHERN OCEAN
TIMOR SEA
AUSTRALIA
NORTHERN TERRITORY
SOUTH AUSTRALIA
GREAT AUSTRALIAN BIGHT

NORTHERN DIVISION
CHAPMAN VALLEY
MULLEWA
MORAWA
NORTHAMPTON
MINEHAVEN
NORTHERN AGRICULTURAL DIVISION
CHAMPION LAKES
GERALDTON
GREENOUGH
IRWIN
THREE SPRINGS
COOROW
CARNAMAH
DALWALLINU
MOORA
DANDARAGAN
WONGAN - BALLIDU
CENTRAL DIVISION
PERTH STATISTICAL DIVISION
SOUTH WEST DIVISION
BUNBURY
HARVEY
WAROONA
MANDURAH
SOUTHERN AGRICULTURAL DIVISION
WAGIN
KATANNING
WILLIAMS
KOJONUP
BROOMEHILL
TAMBELLUP
ALBANY
DENMARK
CRANBROOK
KENT
PLANTAGENET
NORTHAM
TOODYAY
YORK
BEVERLEY
QUAIRADING
DUMBLEYUNG
WAGIN
WICKEPIN
KONDININ
KULIN
LAKE GRACE
NYABING - PINGRUP
ALBANY
KOJONUP
BROOMEHILL
TAMBELLUP
KNOWANGERUP
DENMARK
CRANBROOK
KENT
PLANTAGENET
WESTONIA
SOUTHERN CROSS
MARVEL LOCH
KALGOORLIE
BOULDER
COOLGARDIE
MENZIES
LEONORA
LAVERTON
NORTH WEST DIVISION
CARNARVON
UPPER GASCOYNE
SHARK BAY
MURCHISON
MEEKATHARRA
CENTRAL DIVISION
WILUNA
EASTERN GOLDFIELDS DIVISION
KALGOORLIE
YILGARN
DUNDAS
ESPERANCE
RAVENSTHORPE
KIMBERLEY DIVISION
WYNDHAM - EAST KIMBERLEY
WEST KIMBERLEY
BROOME
HALLS CREEK
PILBARA DIVISION
MARBLE BAR
NULLAGINE
PORT HEDLAND
ROEBOURNE
ASHBURTON
EXMOUTH
TROPIC OF CAPRICORN
NORTH WEST CAPE
ENLARGEMENT
Overseas Services to ADELAIDE MELBOURNE & SYDNEY
Overseas Services to PERTH & FREMANTLE
Overseas Service to MELBOURNE